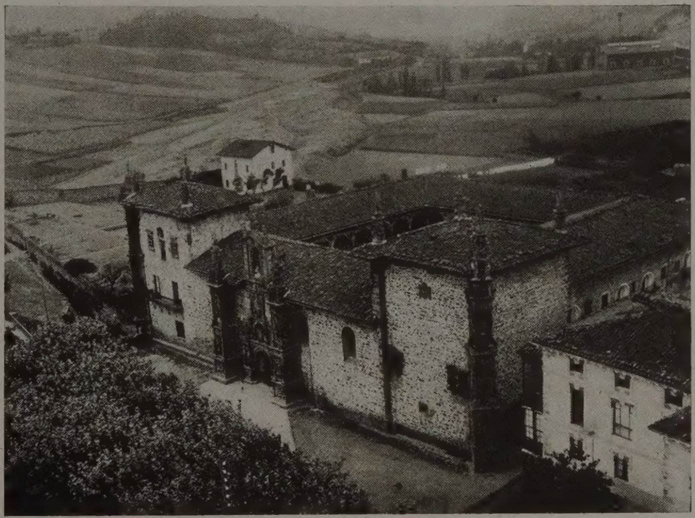
ARCHITECTVRE
THE PROFESSIONAL ARCHITECTVRAL MONTHLY
VOL. XLV APRIL, 1922 NO. 4

Three Basque Towns

By Henry S. Churchill

THE Basque country is, to the traveller who rushes on the twenty-mile-an-hour "espresso lujo" from San Sebastian to Burgos, little more than a confusion of unpronounceable names, a memory of green hills, and recognition of Basques by their *boinas*. Yet here, in the three provinces of Guipuzcoa, Avala, and Viscaya, between the barriers of the Pyrenees, the Bay of Biscay, and the arid uplands of Old Castile, lies one of the most charming districts of Spain.


Oñate University, seen from the tower of the church.

The region is widely known for its unique language, untraceable, and as old, perhaps, as the frescos of the Cave of Altamira; well known, too, for its *pelota*, the game that sentimental humanitarians would like to see the Spaniard substitute for the good red-blooded bull-fight. It is less well known as the centre of the modern Spanish art movement, the home of Zuloaga, and the brothers De Zubiaurre; it is still less known for its folk-songs and its political movement toward separatism and autonomy; and not at all known for its quiet, ancient towns, full of old palaces, universities, country mansions, and still more ancient gates, calvaries, and shrines.

Those who will explore the Vascongada, by its narrow-gauge railways, by motor over excellent roads, by ox-cart, or on foot, will find in its towns and villages poor wine and worse olive-oil, clean beds, hospitable people, strange superstitions, and an astonishing amount of architectural material.

From among many towns, Elorrio, Oñate, and Vergara are selected because they are typical in themselves, and also representative of the diversity of types that are to be found in closely neighboring localities. Very old towns they are, full of local history and legend, from the days of Roland to those of the Carlist wars. Now the thriving little places pulsate with political life, for they are all centres of separatism. The Basques, together with the Catalonians, justly consider themselves too alert and intelligent to be held back from the modern world by the rest of mediæval Spain.

The Basques have always been sailors as well as mountaineers, and in the great days of Spain they were not least among the high admirals and other piratical robbers of the Americas. Their day of glory over at the courts of the intolerable Philips, they returned to their mountain towns, where they built themselves palaces, endowed churches and monasteries, spoke their native Basque, and hated their Castilian masters, to whose commands they replied simply: "*Se obedece pero no se cumpla*"—"We obey but we will not comply."

Elorrio, the loveliest of these three towns, owes much of its beauty to such nobles. As one comes upon the town from the encircling heights, the eye is caught by the yellow of the stone palaces, like sunshine permanently glinting through the trees; by the rich, wine-dark tiles of the hipped roofs; by the castle-like walls and delicate tower of the church. The fantastic forms of the Pyrenees frame it all. It is unreal, a sleepy, dream-gold evocation of a vanished Spain, a distant, Peruvian, silvered Spain. A sonorous peal of bells floats strange harmonies into the distance at baptisms, weddings, and funerals; a different, ancient toll for each. It is a land of church-bell exorcism, of old crosses, of pre-Christian superstitions. . . . A noble lady once took down from over her palace doors and windows the little bundle of dried twigs that keeps away evil spirits, and that night she cooked her own dinner. Her servants could by no means be persuaded that iron bars were a better protection against evil than were twigs of St. John's eve.

Fortified in the tenth century, the cramped circle of Elorrio's old wall may still be traced, from the point on the river bank, where the two metres of its masonry now forms

The Artesinado ceiling of the stair-hall, University of Oñate.

the basement of a house, through the fifteenth-century gate by the Casa Mendivil, back to the river bank half a mile farther up-stream. The first building to be erected outside the walls was a palace of the Urquijo family, the great barons who first successfully put down civil war in the region, and prepared the way for the city of palaces that was to come. Their arms, two dogs holding a riband between them, are to be found in the quarterings of nearly every escutcheon in the town; for they were careful to secure the conquests won by the sword. The original Urquijo escutcheon may be seen over a door of the palace still occupied by the family.

Indeed, descendants of the builders occupy most of the palaces, and are proud of their beautiful, well-kept town, to which they come to escape the horrors of a Madrid summer. The palaces, or, more properly, *casas solariegas*, literally "houses of the ground," or manor-houses, which form the streets of this little summer resort, are amazing in their simple dignity and proportion. Italian influence is manifest, for they all date from the sixteenth and seventeenth centuries, but tempered however by that Spanish pride which achieved the terrific humility of the Escorial; a pride so old as to need no investiture, so deep as to disclaim all pomp. An unadorned façade, a rich wood cornice, balconies of simple fine wrought iron, a panelled wood door, an escutcheon. Nothing more was necessary.

The cornices, wide and overhanging, are the most striking feature. They vary from simple rafter ends to elaborately carved brackets of oak or chestnut. The finest is that of the Casa de Beitia, with its beams splayed to turn the corners. That of the Casa del Conde del Valle is one of the richest, but the treatment at the corner and on the rake at the side is very clumsy.

The Casa de Beitia has also the finest escutcheon in Elorrio. The figures of the mermaids are cut full and free from the background. It is inscribed "Esta casa yzo el capitan Don Antonio de Beitia Año D. 1694." It is to be noted that the glorious yellow stone of the locality does not lend itself to carving, and that the escutcheons are all cut from blocks of imported white limestone. The backgrounds were originally painted a dark blue or red earth color, traces of which remain. The latter color was, and still is, used to paint biblical inscriptions on the façades.

The ironwork of the balconies and of the occasional roadside chapels, such as that on the estate of Señor Picaza, is simple and strong. The long curling brackets of the balconies are most graceful. Here, as elsewhere in Spain, the refractory metal seems to afford the truest expression to native genius.

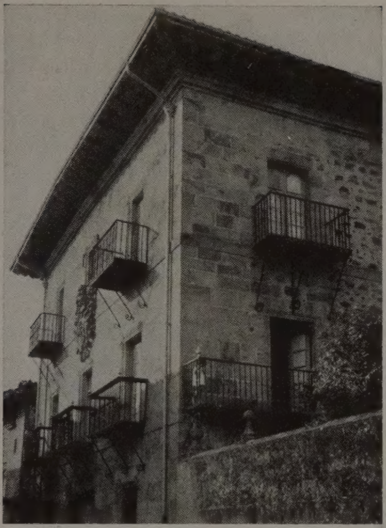
The plans in general are simple and straightforward, enclosed in a rectangle without wings or ells, under one hipped roof. The entrance-hall is flanked by service-rooms; an enclosed stairway to the main floors leads up from the right as one enters. The living-rooms are on the first floor, as in Continental mansions generally. Masters' rooms are on the second floor. Servants are lodged either under the roof or on the ground floor. A universal feature is the arched loggia to the south, affording a shelter from rain and winter winds to the women of the house who, in half-Oriental Spain, are seldom allowed to venture upon the streets. In Elorrio many of these loggias are four-arched, instead of three, as would be expected. Simplicity and seclusion are the key-notes of the houses; the Spaniard does not entertain lavishly in his home.

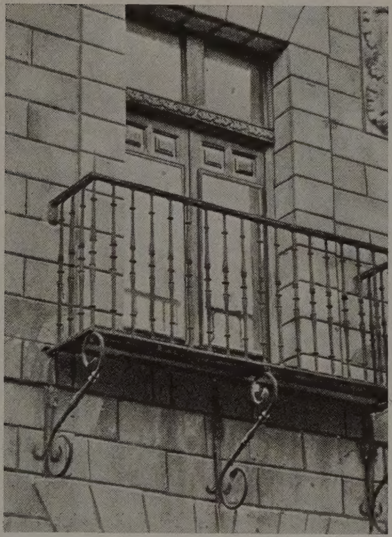
Two exceptions to the type may be noted. The massive casa now being remodelled by Señor Don Juan Gonzalez has a great open stone staircase, in the Italian "grand manner," leading all the way to the second floor. The rooms open out magnificently, and the loggia is a two-storied one. This is also, by the way, the only building in Elorrio with a stone cornice. The casa of Señor Don José Maria de Urquijo, an impressive, rusticated building, sixty-seven feet wide and about seventy-five feet deep, has a patio after the manner of the south. The exterior is exceedingly dignified; the carved wood window-frames are worth noting. This building, it is said, was built in eight months, to be in readiness to receive Philip II.

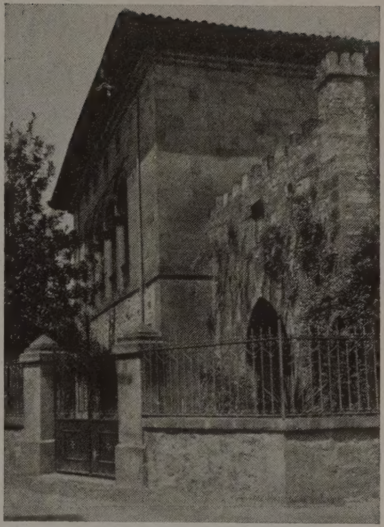
Above the roofs of the town, almost like a castle, rise the precipitous walls of the church, its beautiful Renaissance tower ornamented with inlaid slate. As this church is a typical one, it may be described here. The plan is without transepts, the body of the church divided by large built-up columns into a nave and two aisles, of equal height. Lack of sufficient exterior buttressing has allowed the centre vault to push the columns visibly out of plumb. The ends of the aisles are screened, sometimes by very good rejas, so as to provide chapels. The high altar, of course, occupies the end of the nave. In Elorrio the retablo is Baroque, full of movement and vast in scale, entirely covered with gold-leaf that three hundred years have left untarnished. The west door opens under the *coro*, which, in these smaller churches, is a balcony across the west end, instead of being placed in the nave opposite the high altar, as is usual. Supplementary chapels are provided by placing altars against the walls, as the horrible pseudo-Siammese atrocity in Elorrio, erected to the memory of the Beato Berroa-Ochua, a native of the town, killed while proselytizing among the Ammanites. He was a good man, and probably does not have to look at his altar from his heavenly abode. Light comes from openings high in the uncompromisingly severe walls. An ample porch protects the panelled doors, and affords a gathering place for the people. Sometimes this porch is excessively extended, as in Durango, and becomes the market.

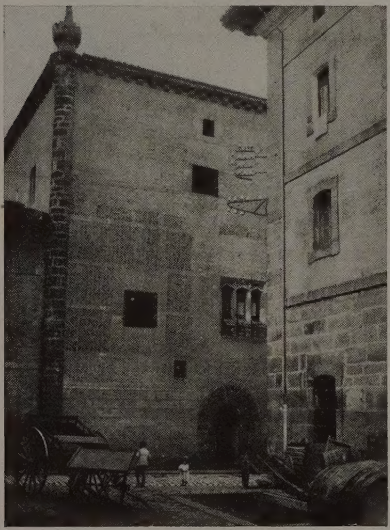
Across the plaza from the Elorrio church is the Ayuntamiento, or town-hall, a fine arcaded structure, reminiscent

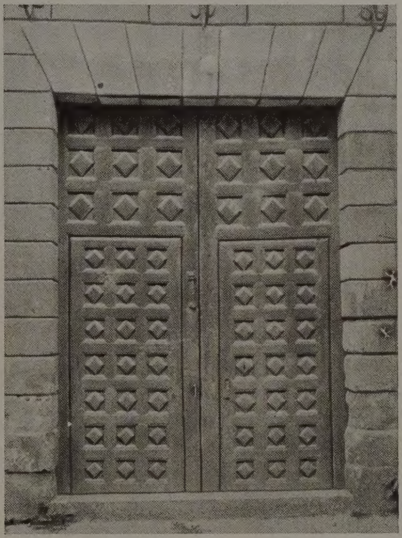
Chestnut brackets of the Conde del Valle cornice.

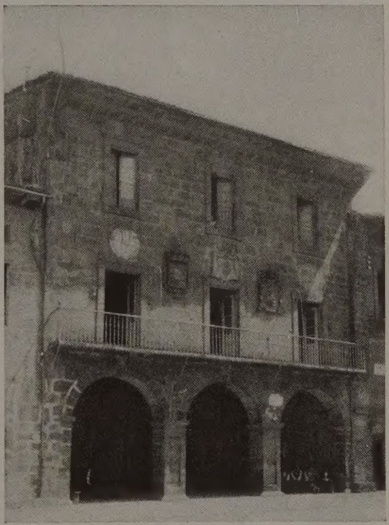

One of the finest of Elorrio palaces, the Casa de Beitia.

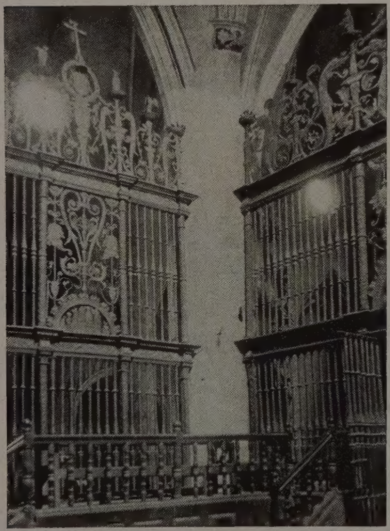

Balcony and window-frames of the casa of Sr. Don José Maria de Urquijo

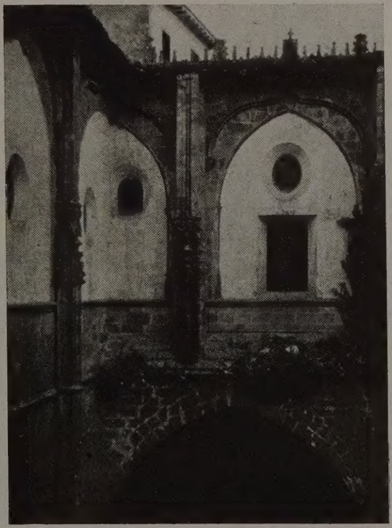

The fifteenth-century gate next to the Casa Mendivil.

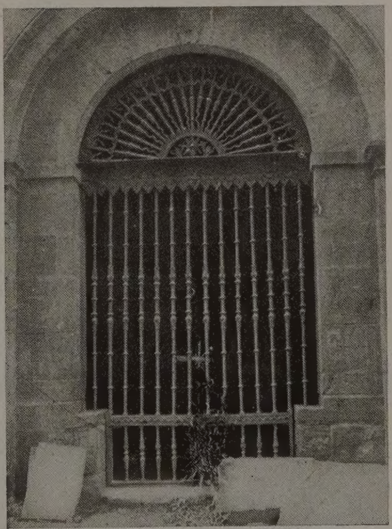

"El Torre," Oñate.


A panelled door from the Casa del Sr. Don José Maria de Urquijo.


The Ayuntamiento (town hall), Elorrio.


Rejas in the church, Oñate


Cloisters built across a brook, Oñate.


Reja of the chapel on the estate of Sr. de Picaza.

Loggias must have a southern exposure in a country where some rain falls every day.

of Italy. Inscriptions on the façade bid the counsellors remember "that idle word that men shall speak, they give account thereof in the day of Judgment."

The country is steeped in primitive religion; roadside crosses and calvaries abound. The former are usually arranged along the road as pilgrimage stations of the cross. Elorrio has a complete set, running through the town itself. The calvaries are called *humiliados*, places where the traveller humbled himself and gave thanks in prayer for dangers passed on the road. They consist of a more or less ornamented base or column, surmounted by a cross with two groups of sculpture, one side representing the crucifixion, the other the descent or a pietá. Elorrio has one dated 1521, a fair example of late Gothic; and another, date unknown, but presumably very early Renaissance, with a singularly moving pietá—a little masterpiece of delicate sculpture. Durango has a good example of a calvary, and many others may be found along the roadsides.

Oñate, only a short distance away, across a divide, differs noticeably in its architectural style from Elorrio. It is less Italian, more rural, comparatively unsophisticated.

The casas are long, low, simple buildings; formal in fenestration, but with an air of comfort and liveableness lacking in the more grandiose palaces of Elorrio. The casa of the Duque del Sotomayor, facing the plaza, is the most formal of them. It has the corner turrets, projecting above the roof, which are a characteristic of the country houses of Vergara, not far away. Elorrio has only one palace so treated, that of the Marques Tola; of the Oñate type, long, low, with whitewashed stucco, Elorrio had no examples at all, nor has Oñate any of the Elorrio type. Adjoining the Casa del Duque is the donjon-like square structure known as El Torre, a grim edifice with a mediæval cornice, black stone trim, and windows simply holes punched in the masonry. The sombreness is accentuated, rather than relieved, by the Gothic triple window over the entrance and by the curious low-relief all-over pattern carved in the stone.

Oñate is also the proud possessor of an university, built by Charles the Second, whose statue and royal arms adorn the entrance. The exterior is of field stone, with red sandstone buttresses, elaborately carved. The design is not successful, as the buttresses are entirely out of scale, and seem to belong to another, smaller building. The court, however, is a splendid example of the two-tier arcade; the sculptured medallions in the spandrels are of high quality. The entrance passage, under the statue of Charles, and the ceiling of the stair hall have as fine artesinado ceilings as can be found in Spain.

The principal church of Oñate is a jumble of atrocious baroque and poor late Gothic. It contains, however, four rejas well worthy of comparison with some of the smaller ones in the cathedrals. The cloisters, too, are interesting, built as they are, over a brook. Their exterior walls are among the sights of Oñate. No photograph can do justice to the amazing blood-orange color of the natural stone, nor to the effect of the plain wall surface with its repeated motive of naïve lions holding up a shield, nor to the exquisite delicacy of the cresting seen against the sky.

Near the town is the Convento de Bidaureta, built by the Catholic kings. It is a barn-like building inside; and the exterior is interesting only for its magnificent royal escutcheons and the amusing belfry of "mission" type.

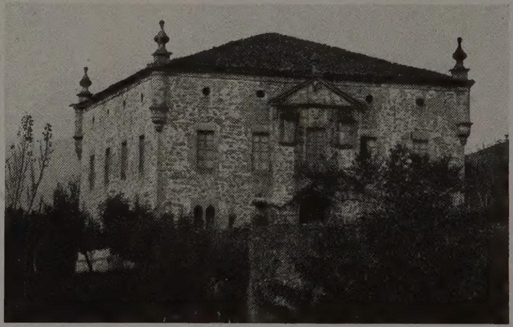
Near by is the prosperous town of Vergara, presenting a different kind of domestic building from either of the two already described. They are square, box-like houses, with round turrets at the corners, ending in ornamental pinnacles above the sweeping eaves of the hipped roofs. Windows occur as wanted; there is little attempt at architectural effect. Yet these houses, when set against a green hill, flanked by an old bridge, and reflected in the waters below, are often charming as are few Spanish things. There is in Spain much dignity, much austerity, a great deal of gloomy magnificence, but little joy or charm.

The Plaza Mayor of Vergara is a handsome, arcaded square. The Ayuntamiento is simply distinguished by escutcheons and incised biblical inscriptions. Near the Plaza is the Palacio Iturbe, with an astonishing band of low-relief ornament—kings and queens hunting game in a strange forest, a whimsical, fantastic design, like an embroidery. The Palacio Jaurequi, next to it, built by a friend of Cervantes, is of Florentine gloom, with its tremendous, overhanging cornice. A curious "stunt" found in Vergara is a corner loggia cut into the building, with an arch, broken in plan, surmounted by a pediment that also breaks around the corner. The supporting pilasters and caps are given a false perspective in an attempt—quite a futile one—to persuade the spectator that the proceeding is a normal one.

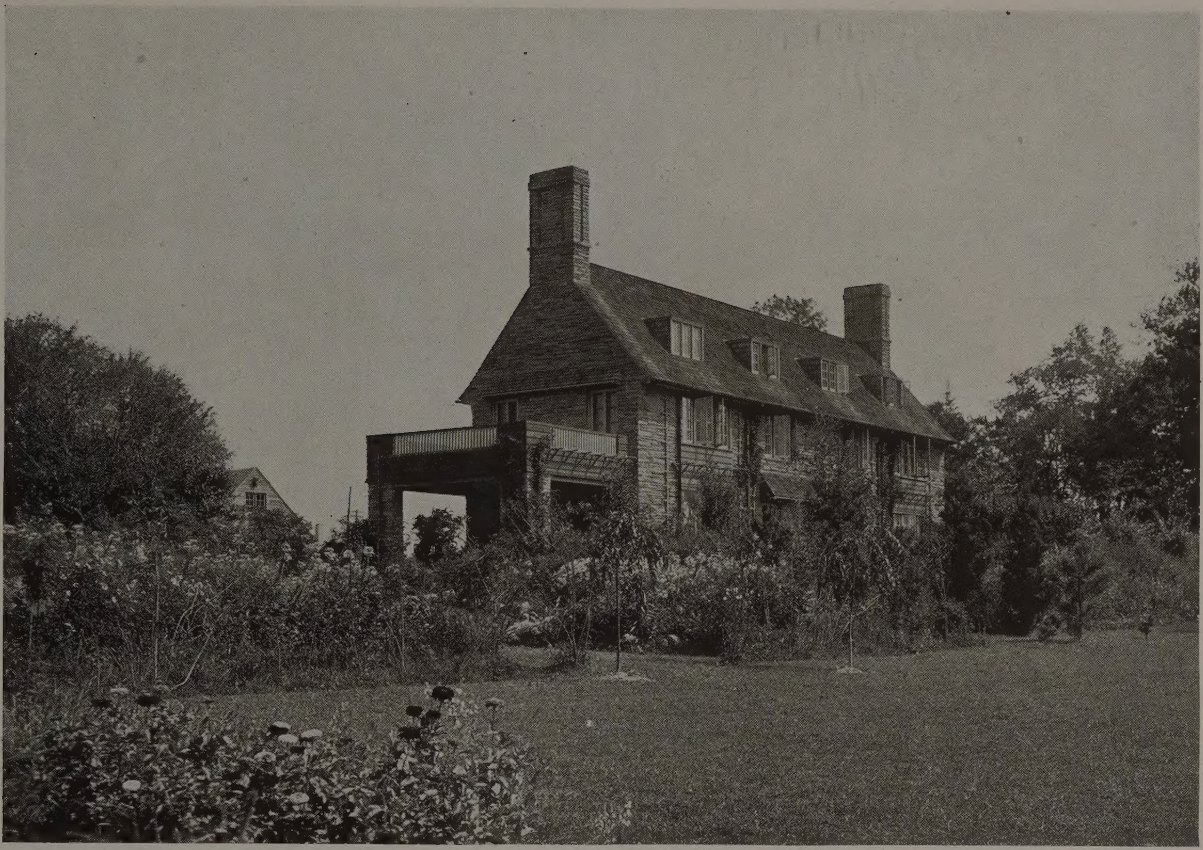
Vergara has two good churches. That of Santa Maria is singularly picturesque, rising like a cliff from the banks of the little river that flows to one side of the town. It has a very fine wood Renaissance retablo; and the elaborately ribbed domical vaulting is effective, although it would give a French Gothicist the horrors.

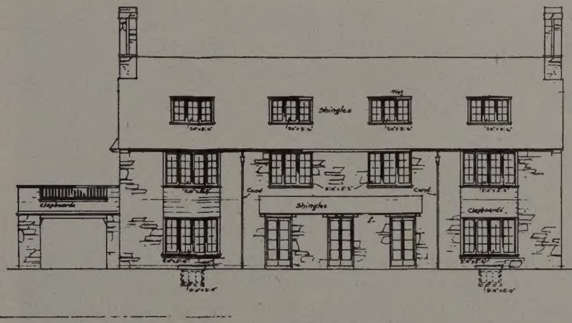
The other church, that of San Pedro, uninteresting in itself, shelters the famous Christo of Montañes. It is the peer of this master's similar work in Sevilla; a realist piece that at once avoids the vacuous sentimentality of the Cellini in the Escorial, and the contortions of the Berruguete school. Montañes, perhaps, learned moderation from his friend Velasquez.

(See also Plate LI.)

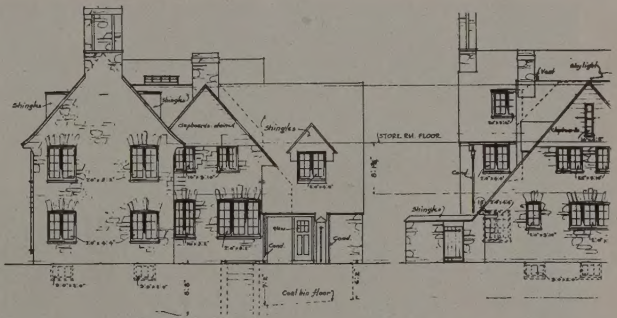


Square, box-like houses, Torre Moyua, Vergara.

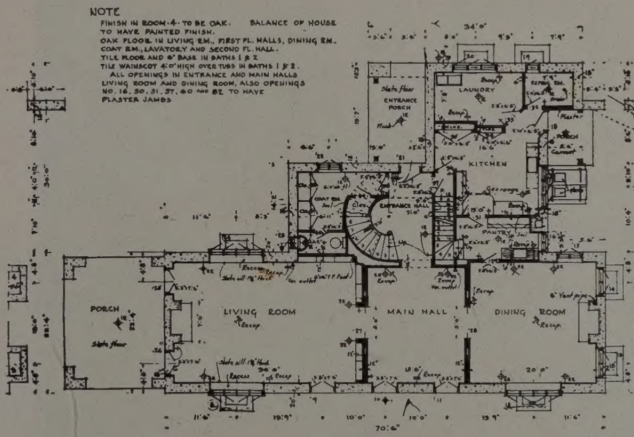




·SOUTH ELEVATION·

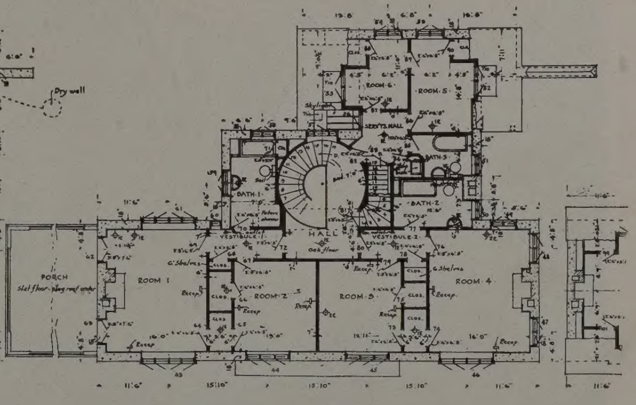


·EAST ELEVATION·



NOTE
FINISH IN ROOM·4· TO BE OAK. BALANCE OF HOUSE TO HAVE PAINTED FINISH.
OAK FLOOR IN LIVING RM., FIRST FL. HALLS, DINING RM. COAT RM., LAVATORY AND SECOND FL. HALL.
TILE FLOOR AND 6" BASE IN BATHS 1 & 2
TILE WAINSCOT 4'0" HIGH OVER TUBS IN BATHS 1 & 2.
ALL OPENINGS IN ENTRANCE AND MAIN HALLS LIVING ROOM AND DINING ROOM, ALSO OPENINGS NO. 16, 50, 51, 57, 60 AND 82 TO HAVE PLASTER JAMBS

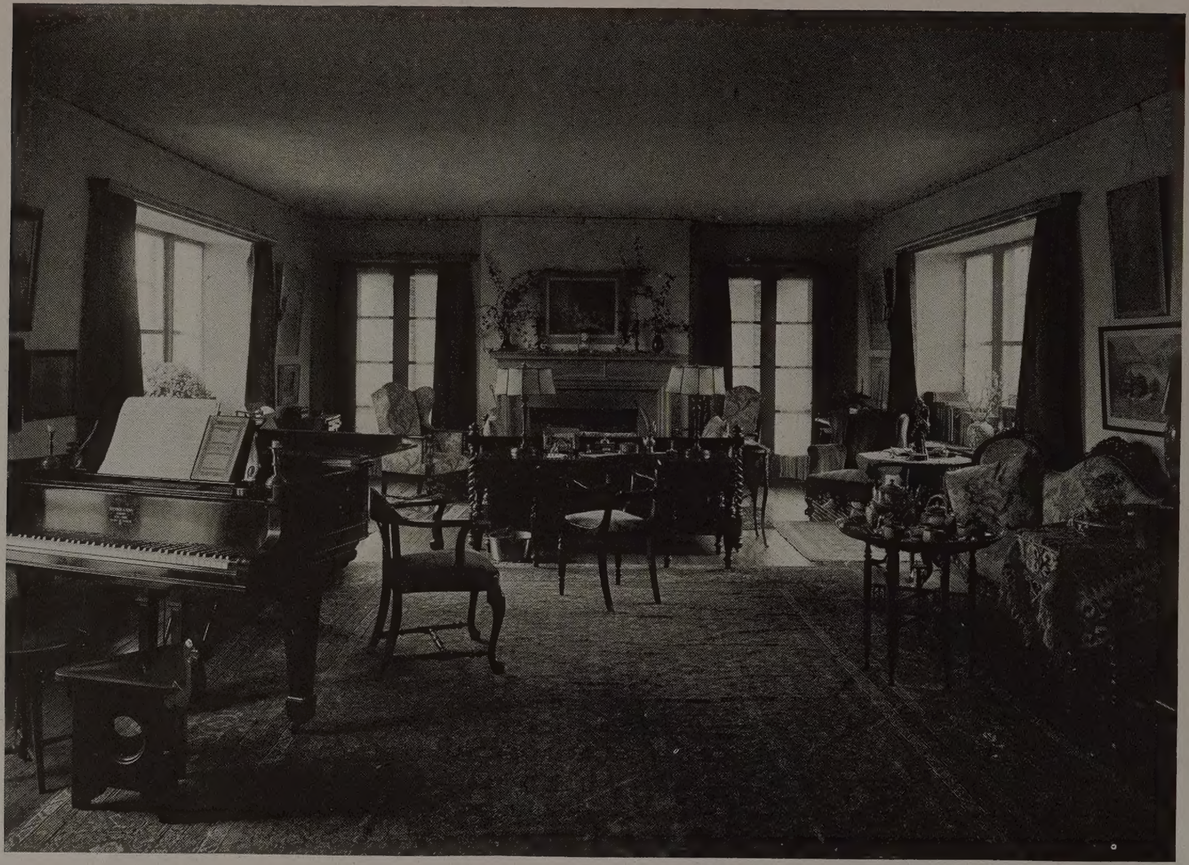
FIRST FLOOR PLAN

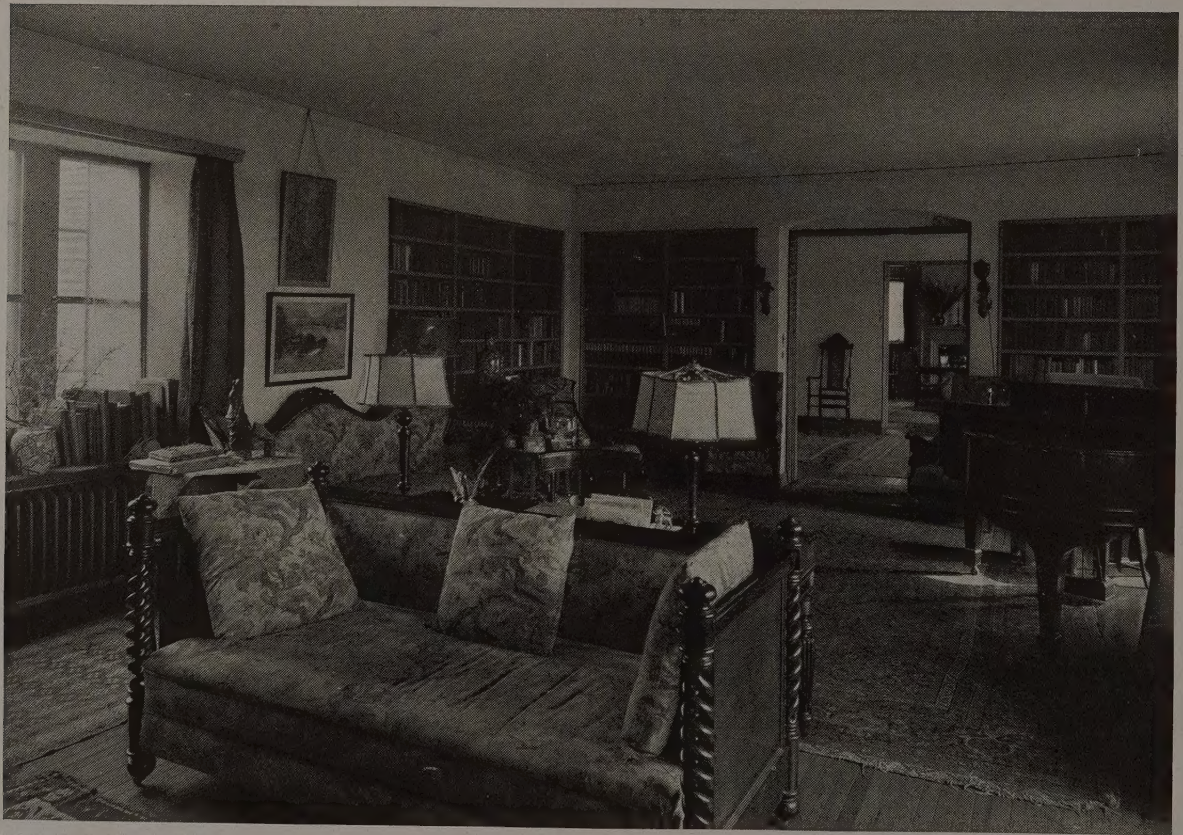


·SECOND FLOOR PLAN·

HOUSE, NOAH SWAYNE 2D, ARDMORE, PA.

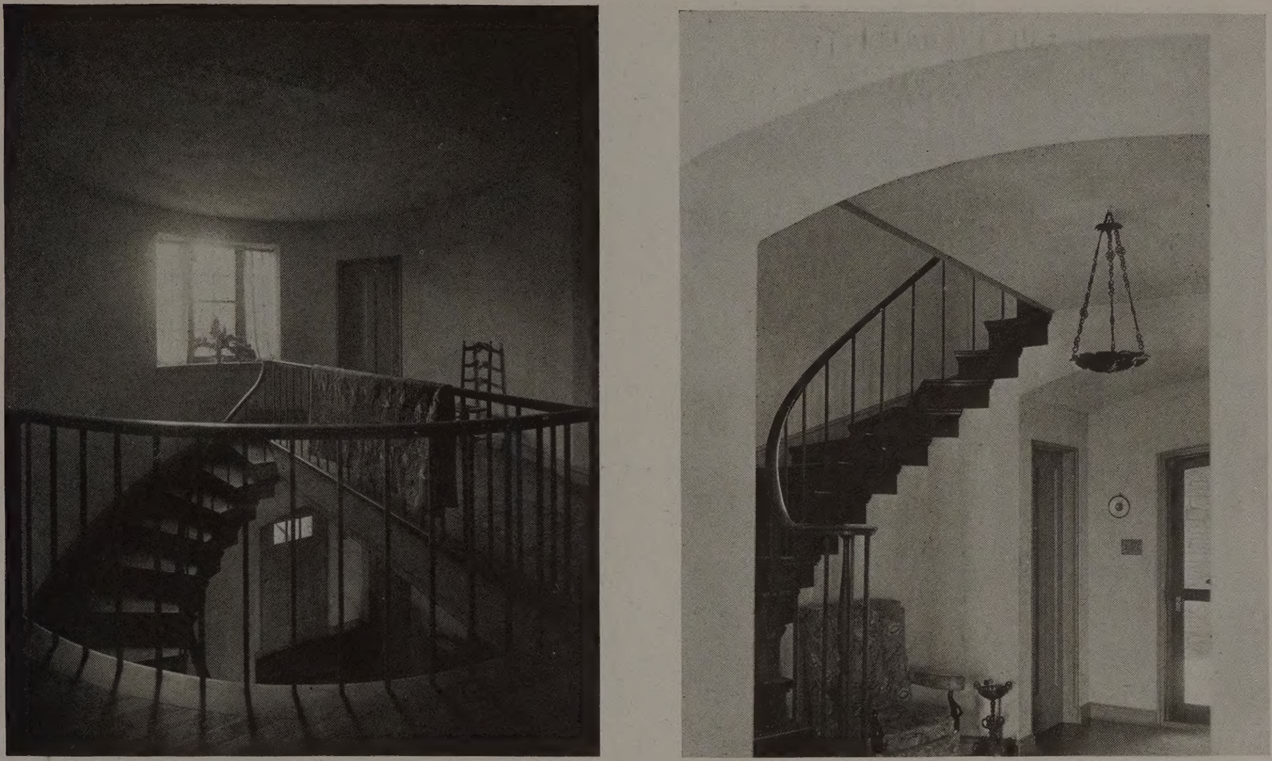
McIlvain & Roberts, Architects.





LIVING-ROOM, HOUSE, NOAH SWAYNE 2D, ARDMORE, PA.

McIlvain & Roberts, Architects.



Halls and stairway, House, Noah Swayne 2d, Ardmore, Pa. McIlvain & Roberts, Architects.

The Le Brun Travelling Scholarship Competition

THE Le Brun Travelling Scholarship for 1922 has been awarded to Mr. Lionel H. Pries of Philadelphia.

There were thirty-three competitors from all parts of the United States.

The quality of the designs submitted was unusually high and the solutions varied. The winner receives $1,400 to enable him to travel abroad for the purpose of study. In addition to the prize, the Jury gave mention placed first to Mr. George K. Trautwein of Philadelphia; mention placed second to Mr. John O. Vegezzi of New York City and mention placed third to Mr. Paul Hyde Harbach of Buffalo. Mentions not placed were awarded as follows: Mr. George N. Pauly, Mr. Roy F. Larson, Mr. Gerald K. Geerlings, Mr. Louis Fentor, Mr. Roy Walling Cheesman, and Mr. Frederick Ross Lorenz.

This prize was founded by Mr. Michel Le Brun in 1910, and was originally awarded every other year, but recently Mr. Pierre Le Brun has increased the endowment so as to enable the New York Chapter, American Institute of Architects, trustees of the fund, to award it annually. The jury of award was composed of Mr. Pierre N. Le Brun, ex-officio, Mr. Milton B. Medary, Mr. Henry Bacon, Mr. Louis Ayres, Mr. Laurence F. Peck, Mr. Francis Nelson, and Mr. Julian Clarence Levi, chairman.

Julian Clarence Levi, *Chairman,*
Le Brun Scholarship Committee.

Book Reviews

COLLECTED PAPERS ON ACOUSTICS. By Wallace Clement Sabine, Late Hollis Professor of Mathematics and Natural Philosophy in Harvard University. With portrait and numerous illustrations from photographs and drawings. 4to. Harvard University Press, Cambridge, Mass.

Professor Sabine was the acknowledged authority on this one of the most interesting and complicated of architectural problems. He had devoted many years to a most careful scientific study of the subject in all its phases, and was called in consultation many times.

The chapter headings give a comprehensive idea of the range of his investigations and make manifest the great value and importance of such a volume for the architect's library: Reverberation, The Accuracy of Musical Taste in Regard to Architectural Acoustics, The Variation in Reverberation with Variation in Pitch, Melody, and the Origin of the Musical Scale, Effects of Air-Currents and of Temperature, Sense of Loudness, The Correction of Acoustical Difficulties, Theatre Acoustics, Building Material and Musical Pitch, Architectural Acoustics, Insulation Sound, Whispering Galleries.

Many expensively constructed theatres and halls have been failures through a lack of knowledge of the principles that this book presents in such thorough fashion. It is a monumental volume in the very real sense of the phrase.

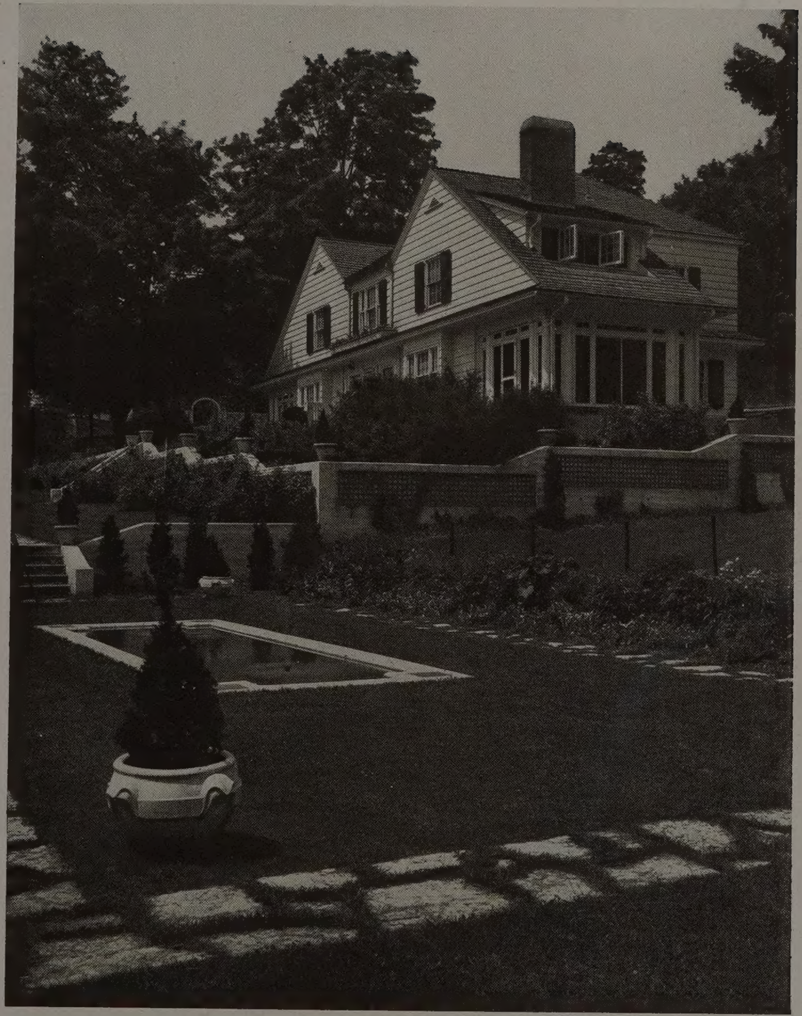
PICTURESQUE SPAIN. Architecture, Landscape, Life of the People. By Kurt Hielscher. 4to. Brentano's, New York.

This collection of pictorial photographs is another contribution to the ever-growing books about Spain.

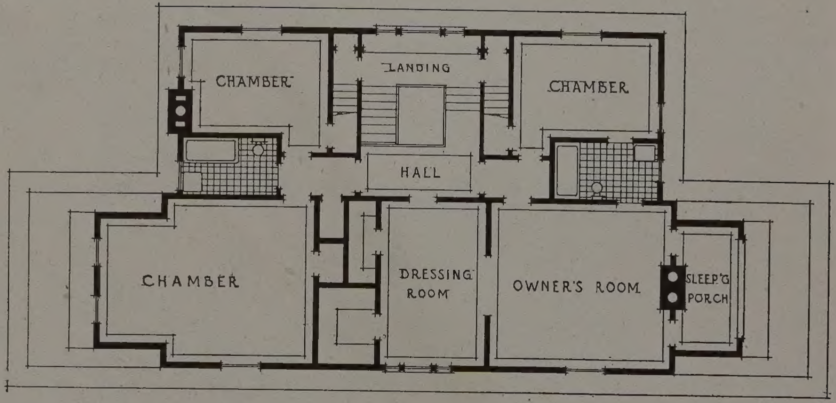
The country seems to have been newly discovered in recent years, and both architects and painters have gone there of late in search of fresh material. Many of the photographs in this collection are much above the ordinary so-called picturesque camera studies.

SKETCHES OF EARLY AMERICAN ARCHITECTURE. By O. R. Eggers. With a series of descriptive monographs by William H. Crocker. Portfolio. The American Architect, Publishers.

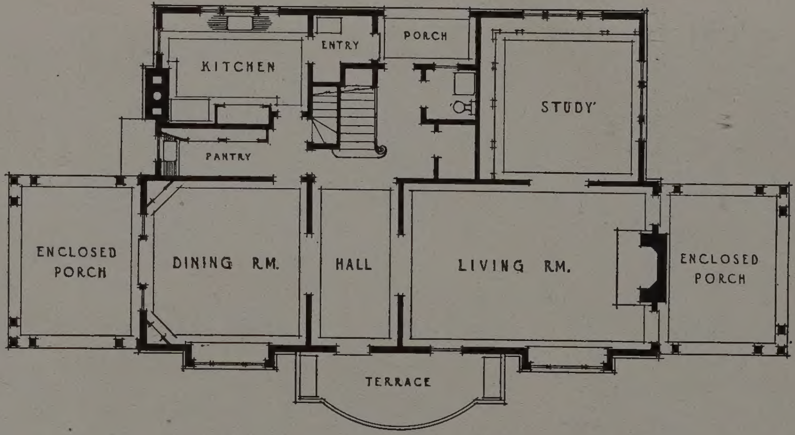
Mr. Eggers is too well known for his beautiful drawings to need any special comment here. This series of plates that first appeared in *The American Architect* covers a wide and diversified range of subjects, handled with skill and delicacy and yet with enough insistence upon detail to make the drawings of practical value. Mr. Crocker's text, brief as it is, shows his own fine sense of the picturesque and sympathetic appreciation of the quality and significance of the drawings.



GARDEN VIEW, HOUSE, F. M. SIMPSON, LITTLE FALLS, N. Y.

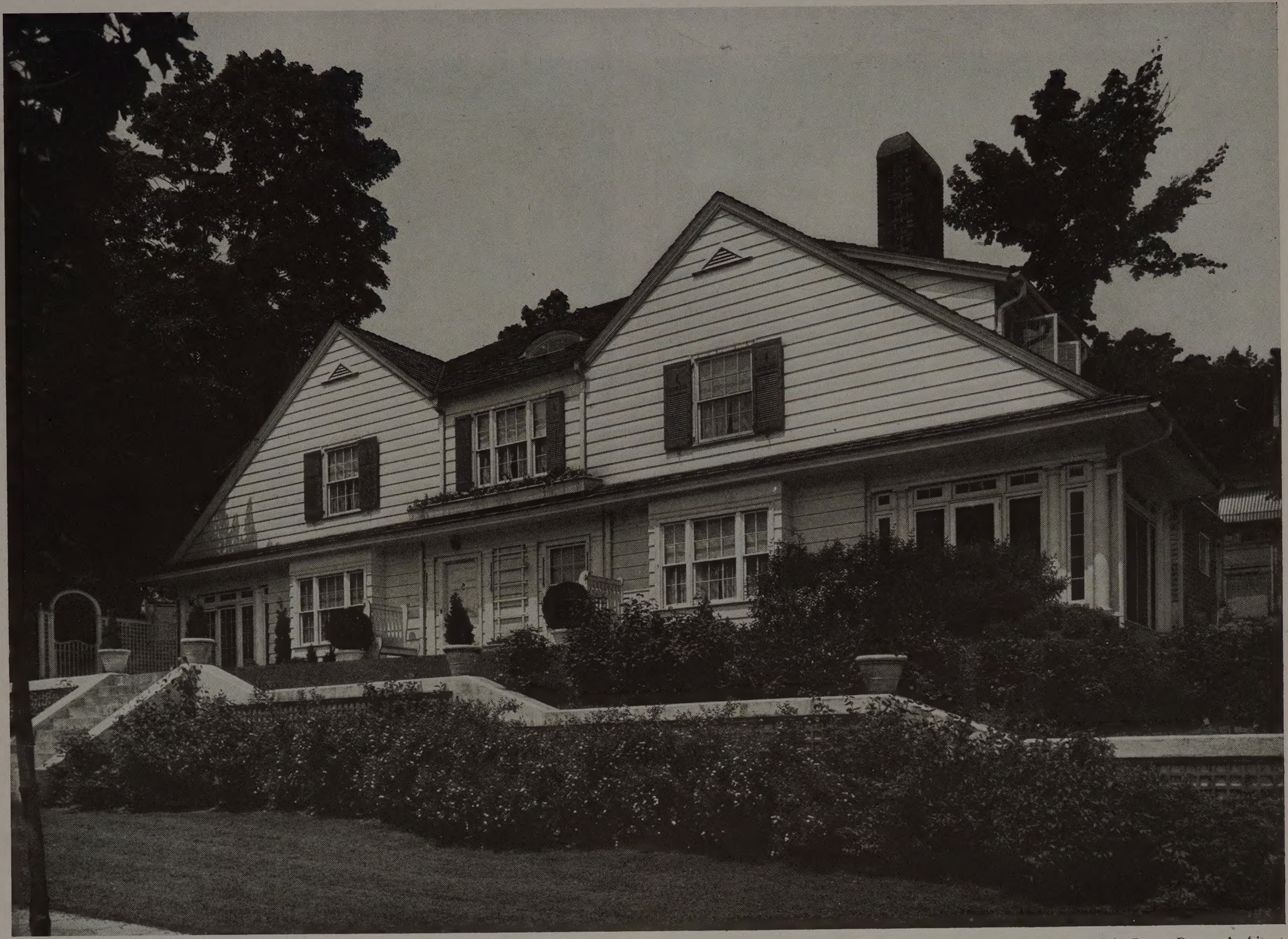


SECOND FLOOR PLAN



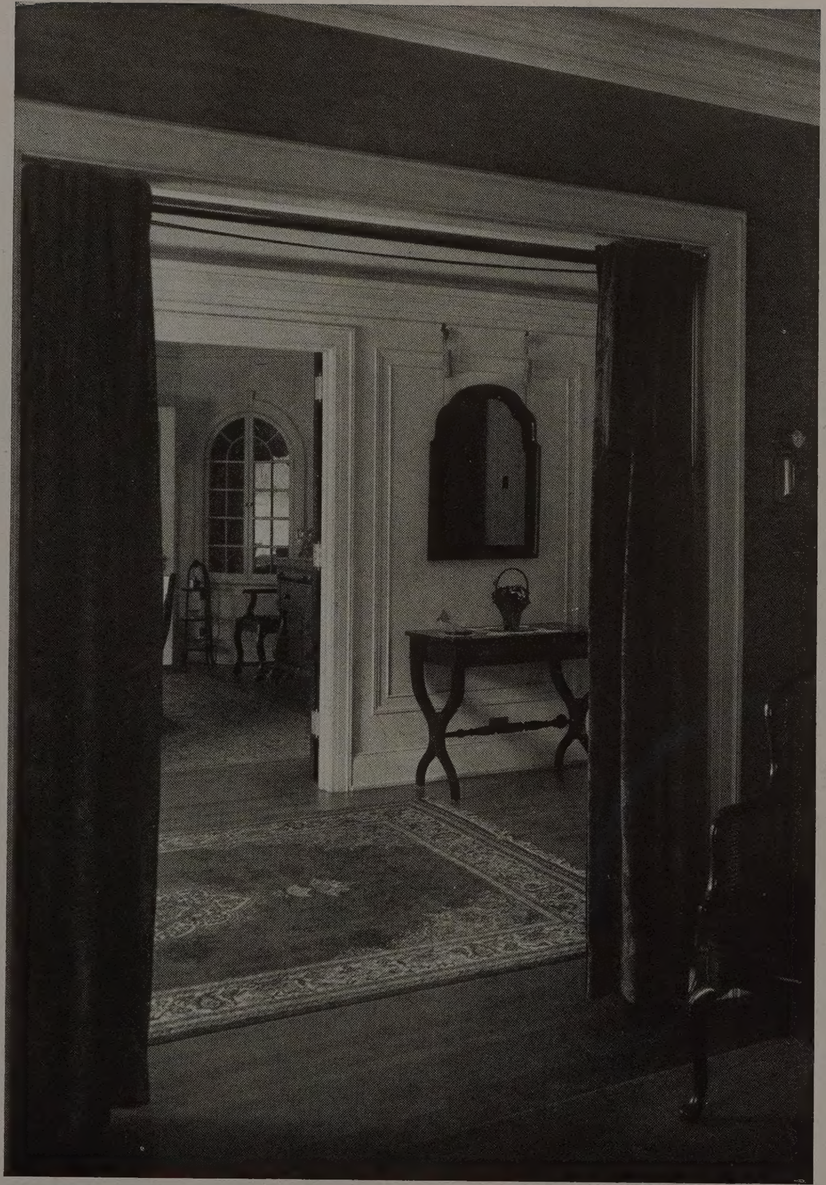
FIRST FLOOR PLAN

Dwight James Baum, Architect.

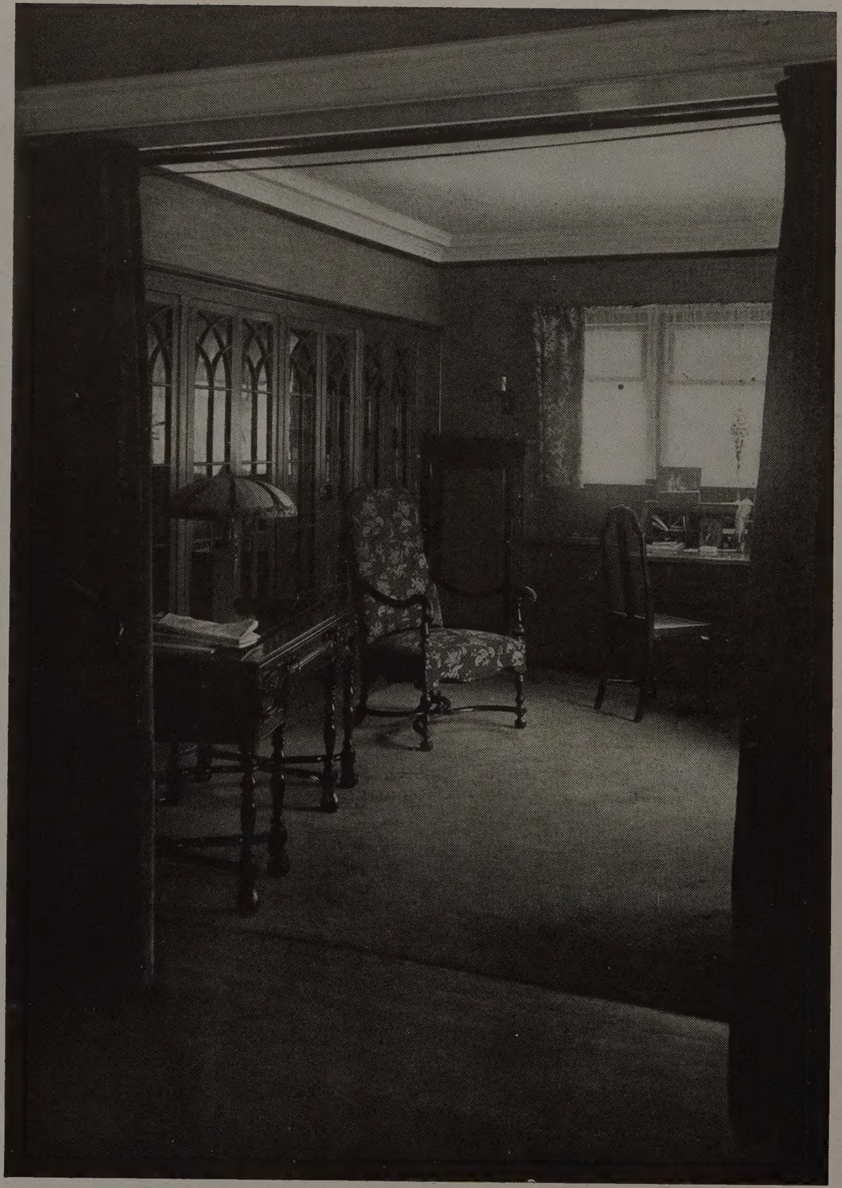


HOUSE, F. M. SIMPSON, LITTLE FALLS, N. Y.

Dwight James Baum, Architect.



HALL TOWARD DINING-ROOM.



HALL TOWARD LIVING-ROOM.

Dwight James Baum, Architect.

HOUSE F. M. SIMPSON, LITTLE FALLS, N. Y.

Editorial and Other Comment

Art and the Public

WE present in this number Mr. MacMonnies's much talked about "Civic Virtue," designed for the fountain in front of New York's justly famous City Hall, together with the sculptor's own statement of the ideas that inspired his design. Mr. MacMonnies needs no defense of his art from us, his position as one of the most distinguished sculptors of modern times was established long ago.

It seems to us that to put an artist of his distinction in the hands of the philistines for discussion is, to say the least, not only unnecessary but quite beyond the canons of good taste and fair play. We have an art commission presumed to be competent to pass on the desirability and suitability of our public monuments, and "they had seen the actual model and a painted silhouette in cardboard placed on the site in the exact position the statue is to occupy," and had given it their approval. The preliminary baiting of the artist without any real or reasonable basis for such criticism seems to be characteristic of our dear public when it is given the opportunity.

These are parlous times for the arts of all kinds, when every man or woman in the street is an authority, "he knows nothing of art, but he does know what he likes," and as for the gentle sex, is there anything that mere man has done or can do that may not be better done by the newly emancipated?

Somehow we feel that in this instance the mob spirit has been manifested in a shameless and needlessly offensive way. It reminds us painfully of the fact that our standards of decency in the treatment of art have fallen like the walls of some of the shoddy and unscrupulously constructed recent buildings, and are in keeping with the stuff with which we have been recently edified in the much-exploited show of the Independents and in the guise of plays with which our theatres are reeking. We are becoming a people of independents in many ways, independent of respect for all authority, artistic and otherwise. For a time, that some of us can still remember, art was a citadel to be attacked by the elect, nowadays we call the public in consultation, and the result is not better art but more discouragement and disgust for the men and women who are giving their lives in the effort to build up an American art that honors us all.

There never was a thing created of man that could please every one. Differences of opinion in this case are justifiable, of course; it might have been something else, but in itself it is a worthy, a dignified and remarkable achievement. If it had been put in place without all of the preliminary gallery play we believe it would have been looked upon and accepted without question as another of the comparatively few civic monuments we can all be proud of.

The School as a Community Centre

THERE is a marked tendency in the designing of schoolhouses toward making them serve a wider civic purpose. The school is the natural centre of interest in most towns, and is usually a source of considerable pride for all concerned. Our public-school buildings have been greatly improved within the past eight or ten years, both in their planning and appearance. In many places they are the outstanding architectural monuments, often exceeding in importance the City Hall that in former times included jail and court-house. We never more needed to emphasize the importance of the school as the chief source of inspiration in the effort at the Americanization of our millions of foreign-born. We need to make them first of all familiar with our language. Their children go to our schools, and the parents should be made to realize that the schools are for them also.

As a community centre a hall for special public entertainments can be provided and made useful for many occasions, where pupils and parents may come together for the common purpose of learning how to become better and more capable Americans. Many adults of foreign birth live here for years with hardly any knowledge of English, and, as their children grow up and go out into the world, feel that they are shut off from association with the younger generation and with the wonderful English language that so often spells opportunity and success for its possessors.

The schools should be made a beacon by night as well as a mark by day, and to make them serve the community in broader ways is to assure a more cheerful support of the tax-payers in their building. To make the schools not only educational but social centres will do a lot to unify and bring a new spirit of nationality into town life.

The History of Architecture

RECENT reviews of Sir Banister Fletcher's great book "A History of Architecture on the Comparative Method," have spoken of it in the highest terms. It is really a wonderful book in the condensation of text, its lavish use of photographs and detailed drawings, in fact it is, as *The Architectural Review* of London well says, "Encyclopædic in character, and may be used with equal advantage as a text-book for study or as a work of reference of unusual competence and comprehensiveness." We were struck with the following in the author's preface, and it seems to apply to so many other things about which books are written that we are tempted to repeat it for those who may not stop at the entrance of Sir Banister's temple.

"The history of architecture has suffered from the insatiable instinct for classification. A writer collects a few facts and dates, and instead of treating them as material for a working hypothesis, builds up his history in a series of compartments, which are ultimately put forward as an actual and authentic sequence in fact. Thus, in the old days of the Gothic revival, we were taught to discriminate between Early English, Decorated, and Perpendicular, and the writers of our guide-books still disfigure their pages and mislead their readers with E.E., Dec., and Perp. History is not so easy nor is it so accommodating to a man with a passion for system. Things happen simultaneously as well as one after the other, and a habit of design that may have become obsolete in one place may linger on in another for a hundred years or more. It is impossible to assign a specific date to the beginning and end of any vital development of architecture, where movements go far back into the past and reach far forward into the future, and the ordinary text-book classification by styles and periods, limited to definite terms of years, have little value in that they have to exclude large quantities of relevant facts. When, therefore, one speaks of the architecture of Louis Quatorze, Louis Quinze, or Louis Seize, it is necessary to define more closely what one means."

"*Civic Virtue*," *as Conceived by the Artist*

An Extract from a Letter to the Editor by Mr. Frederick MacMonnies

"THE youth has one foot behind one of the sirens who is impeding his progress by entwining herself and her fish's tails about it, and the other foot is planted on a rack in front of the other siren, who is attempting to snare him with her net. He is not 'trampling,' 'kicking,' nor 'stepping' upon, but escaping from the sirens.

"I am blamed for choosing a male figure to suggest strength, female to suggest grace and beauty, forms of sea monsters to suggest treachery and guile. I did not invent this. I have to take things as they are. An artist is not responsible for verities. He only records them. He is observer—spectator of life. He will not lie to please anybody. To flatter the ambitions of women he cannot pretend that their graceful fragile forms give an impression of strength.

"The Creator has willed otherwise. He cannot express his idea at all unless he bases it on the verities. He cannot get it across. The attainment of suffrage by women has not yet changed the fundamental verities, nor altered the laws of creation. When it does, some artist will be there to record the change.

"The gem-like City Hall recalling another age, lying at the bottom of the well formed by the canon-like wall of surrounding skyscrapers of the present city, required a design that would harmonize the old and new. To make the fountain emblematic of our treasured antique jewel and a living part of modern New York; to 'throw back' and indulge in the ease of archæology and build a graceful miniature fountain and figures such as might have been done when the City Hall was built (when horses trotted about drawing dainty ladies and elegant casual gentlemen in fragile carriages, and the sky line of New York was uncluttered as far as the Palisades), would have been to make the neighborhood as dead as the Roman Forum or St. Paul's Churchyard.

"I believe my titanic Youth will bring down some of the strength of the towering structures about, and by his robust scale only add by opposition (if such a thing is possible) to the grace and dignity of the City Hall and light up the park with life and modernity."

For the Simplification of Building Materials

SIMPLIFICATION of building materials as a means of eliminating waste in industry was discussed at a recent conference held between officials of the Department of Commerce and representatives of architectural, engineering, and building organizations.

The Fabricated Production Department of the Chamber of Commerce of the United States is co-operating with the Department of Commerce and the industry in the movement.

The work of the meeting may be summed up in the following resolution which was adopted:

"*Whereas*, The undersigned committee of architects, contractors, and engineers are fully in accord with Secretary Hoover's programme for elimination of waste as a major means to the stimulation of American business, *and*

"*Whereas*, Prominent among the many factors which contribute to such wastes in building as evidenced by the high cost of construction are the multiplicity of types and the great variety of dimensions which now abound in many of the component parts which enter construction, *and*

"*Whereas*, The cost of construction will undoubtedly be thereby lessened, the industry stimulated, and interest of the public conserved by dimensional simplification;

"*Be it Resolved*, That this committee formed to discuss the subject of dimensional simplification recommends to the Department of Commerce that the Division of Simplified Practice study certain essential parts of construction with a view to simplifying the types and lessening the number of different dimensions of those parts."

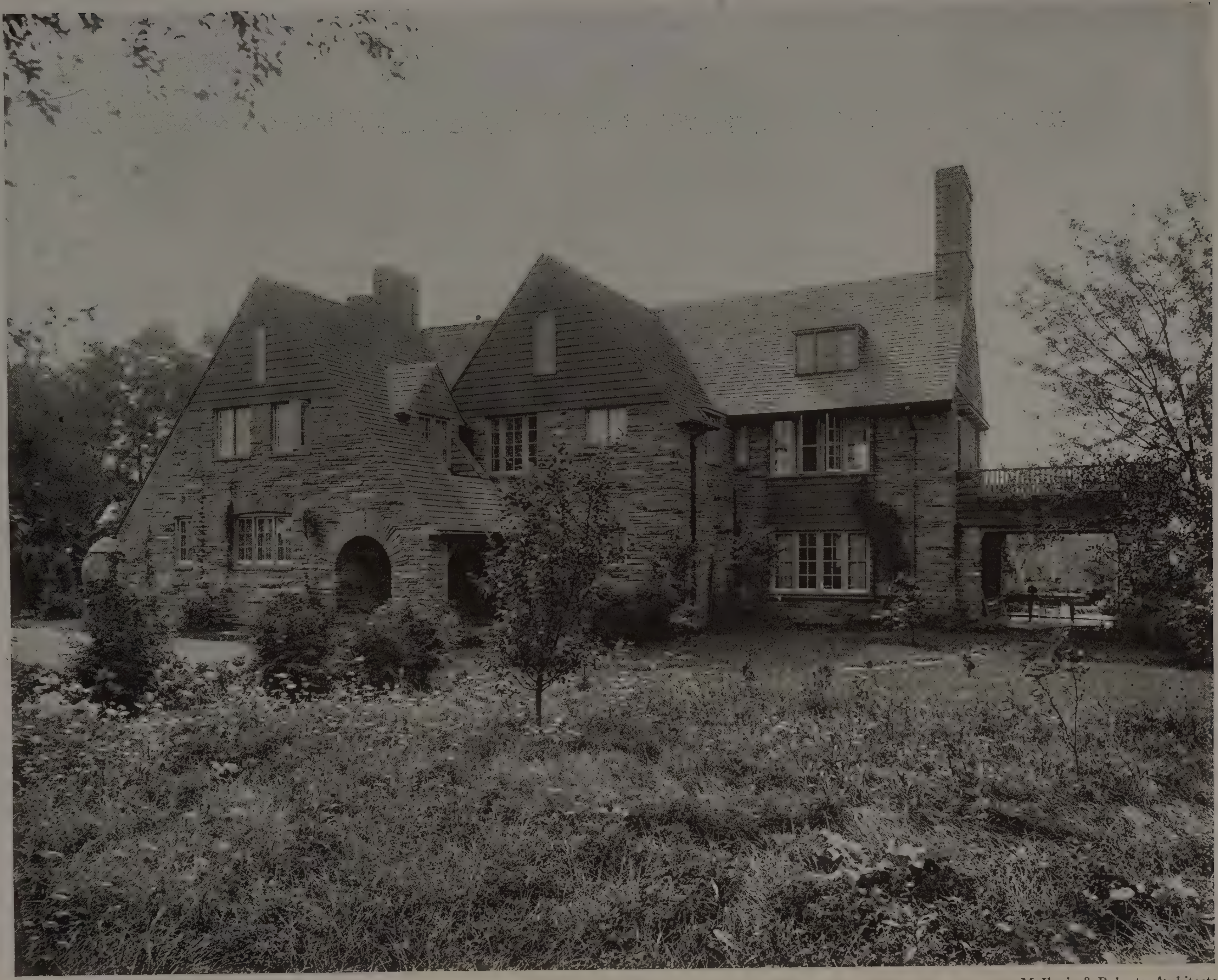
In selecting the items of building materials to be given attention first, the following were designated: mill-work, plumbing, heating, interior wall construction, hardware, lighting fixtures, clay products, the latter including brick, tile of all kinds, terra-cotta, sewer-pipe, etc.

The High Cost of Forest-Fires

FOREST-FIRES are costing the West five or six million dollars every bad year, says a recent issue of *The Forest Patrolman*, published by the Western Forestry and Conservation Association at Portland. Much of this loss is preventable. This association asserts that the wise expenditure of one per cent of this five million dollars could secure such public interest and so encourage fire prevention measures that forest-fire causes could be reduced practically to lightning and incendiaries.

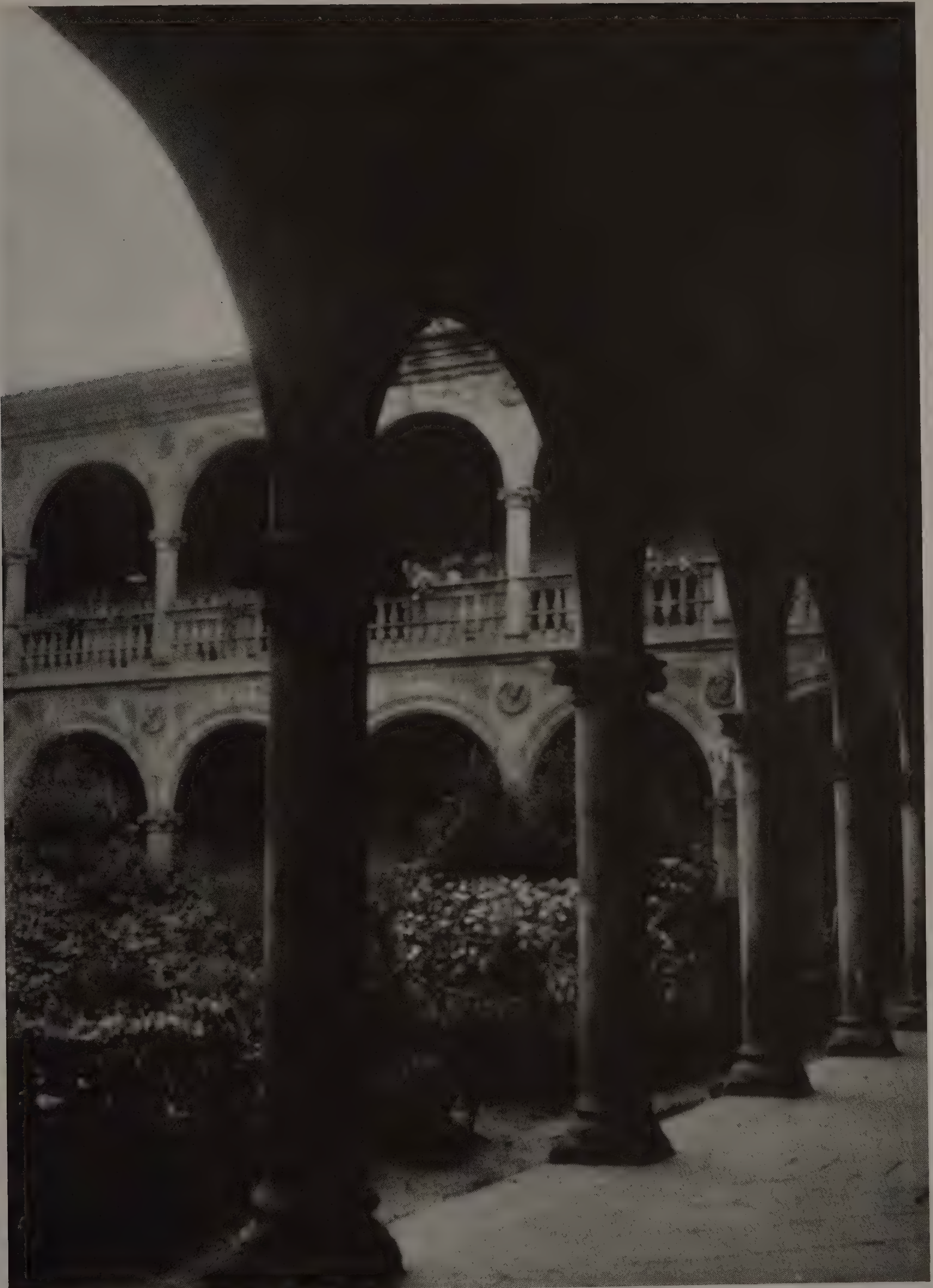
Forest-fire losses the past season were heavy in Montana and parts of Idaho, light in Washington and above normal in Oregon. California had severe fires late in the season, so that complete data is not yet in with reference to her total losses. The expenses for protection of privately owned lands will be above the average for the season, due in part to the high cost of labor and supplies. The effort of private timberland owners to reduce fire loss is efficiently organized and has been generally effective.

The Twenty-fifth Architectural Exhibition of the Philadelphia Chapter, American Institute of Architects and T Square Club, will be held at the galleries of the Art Alliance, 1823 Walnut Street, Philadelphia, Penna., May 14 to 28, inclusive. Address all communications to R. J. Wadsworth, Chairman, 204 S. Quince St., Philadelphia.

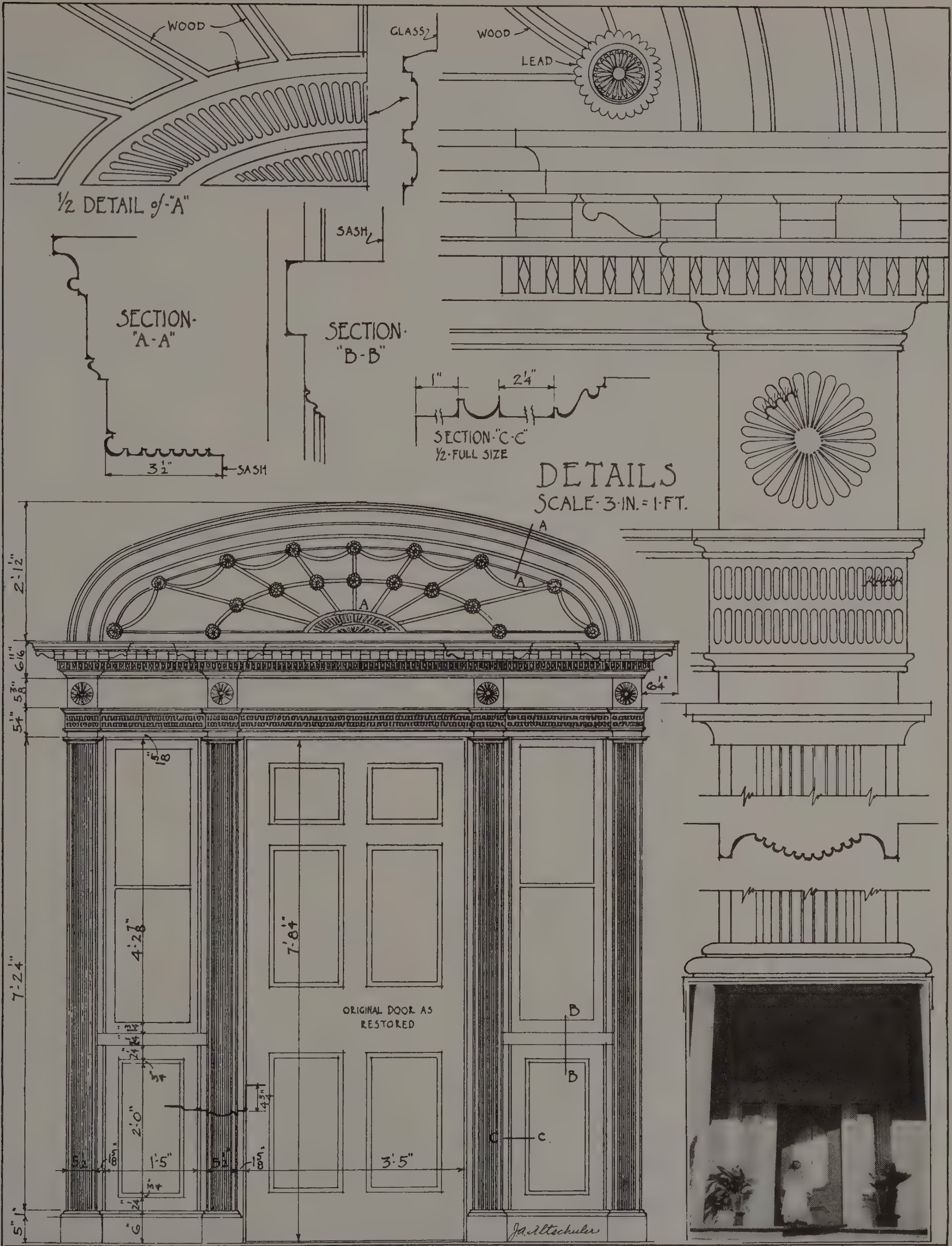


HOUSE, NOAH SWAYNE II, ARDMORE, PA.

McIlvain & Roberts, Architects.



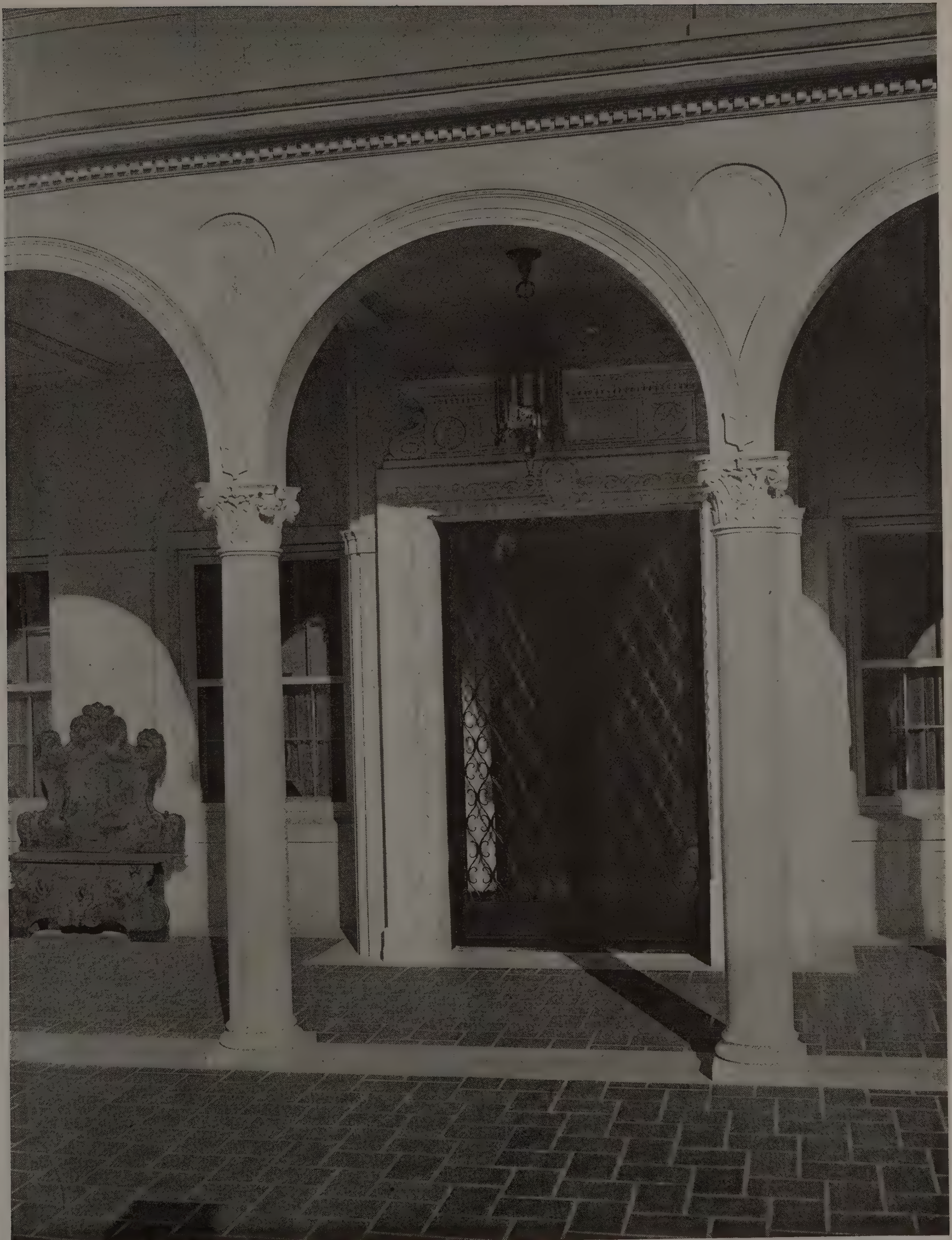
THE COURT OF OÑATE UNIVERSITY, SPAIN. A SPLENDID EXAMPLE OF THE TWO-TIER ARCADE.



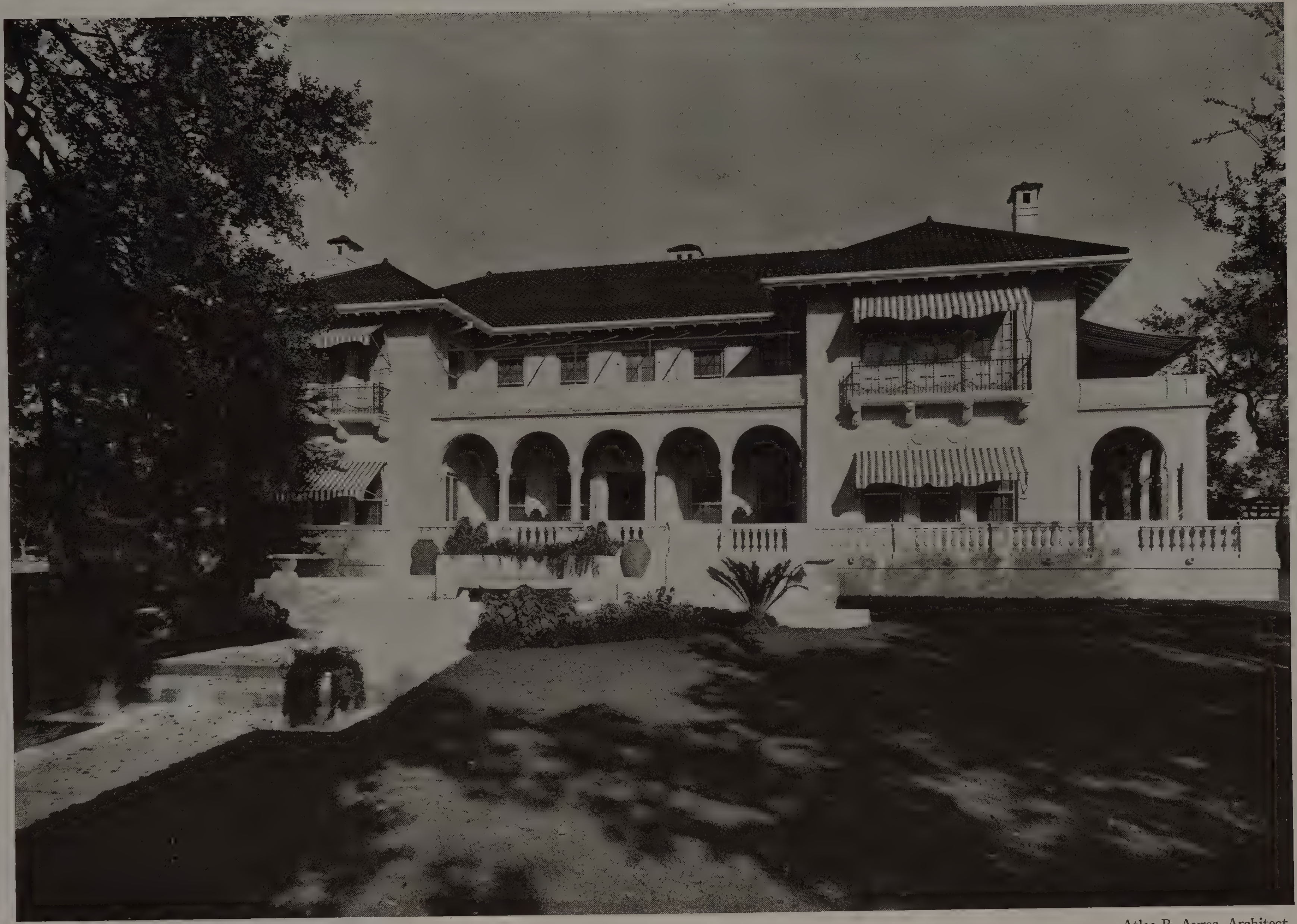
COLONIAL ARCHITECTURE
of the
CAROLINAS

DOORWAY · 30 GEORGE ST.,
DATE · 1810 CHARLESTON · S · C.

MEASURED & DRAWN
by
J.A. ALTSCHULER

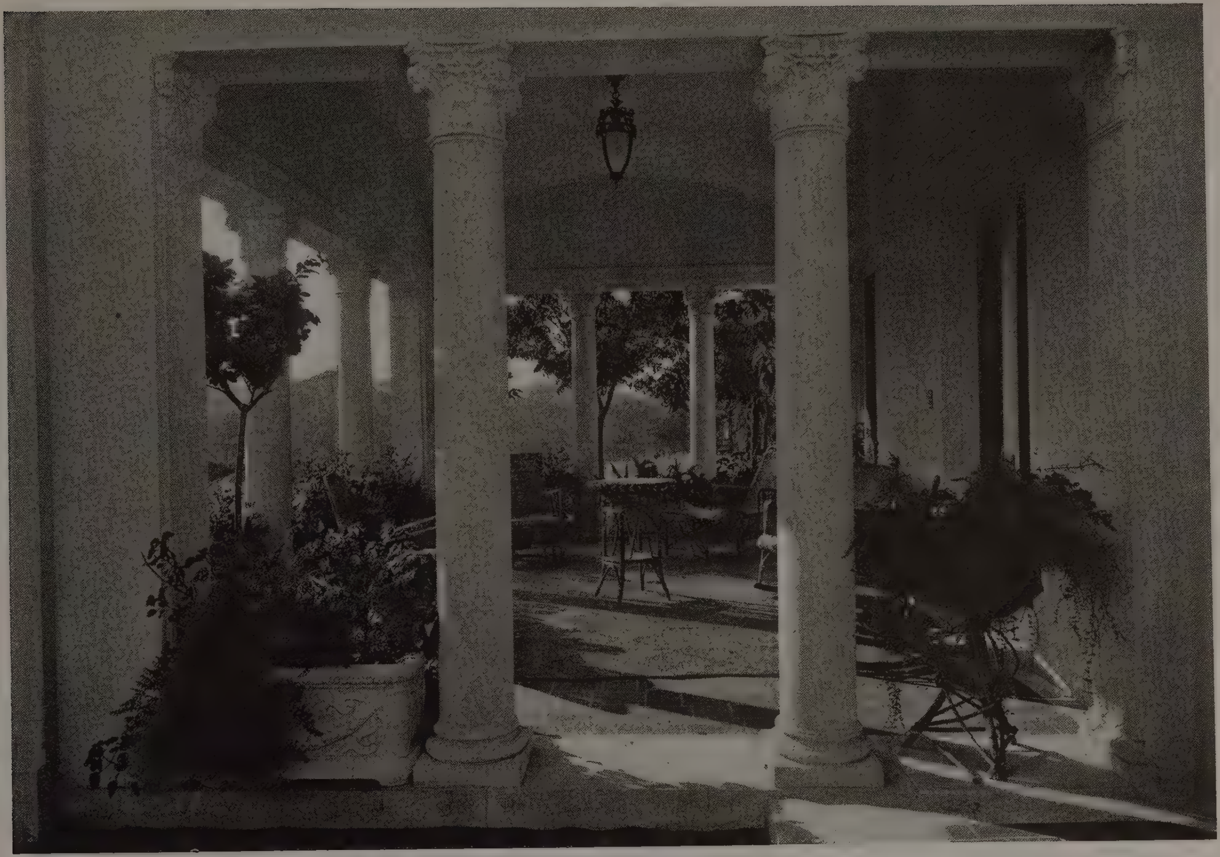


MAIN ENTRANCE, HOUSE, W. C. RIGSBY, SAN ANTONIO, TEXAS. Atlee B. Ayres, Architect.

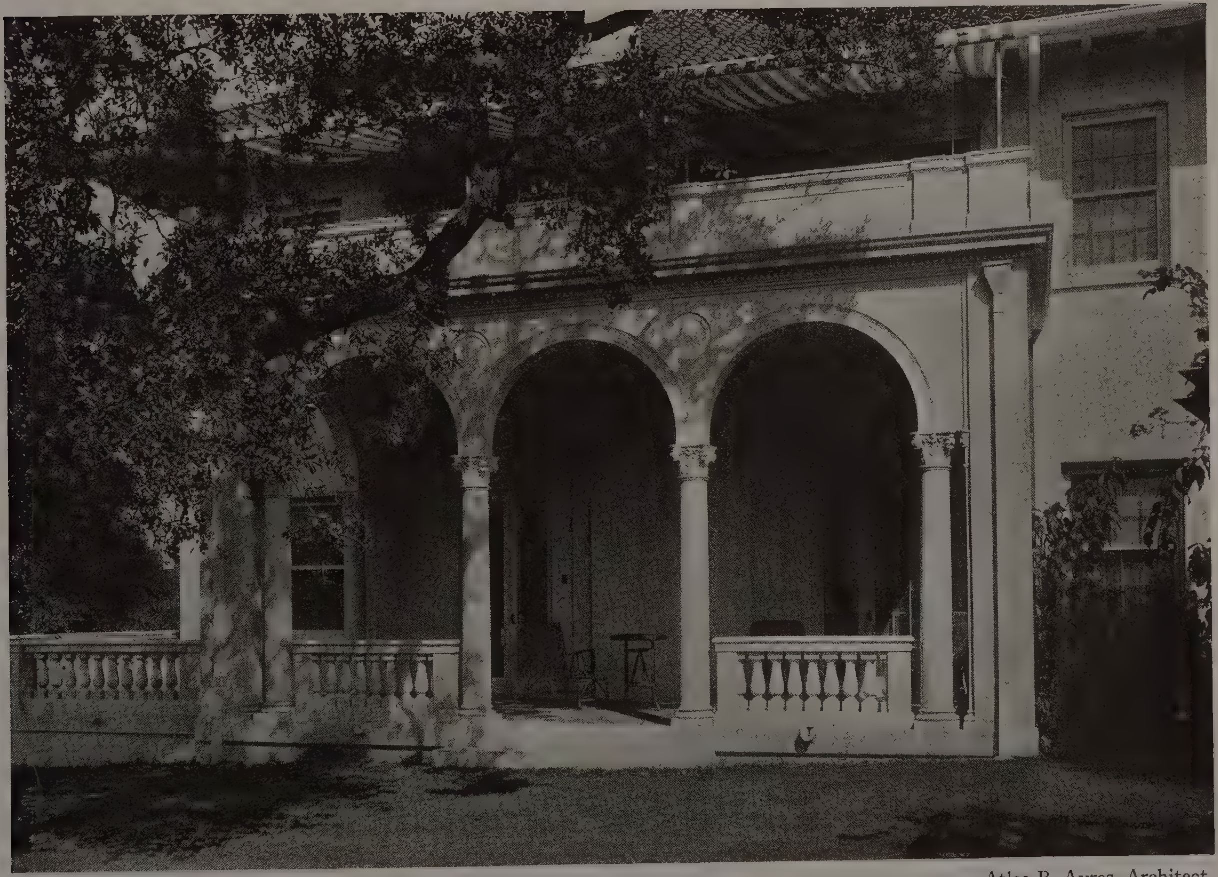


HOUSE, W. C. RIGSBY, SAN ANTONIO, TEXAS.

Atlee B. Ayres, Architect.



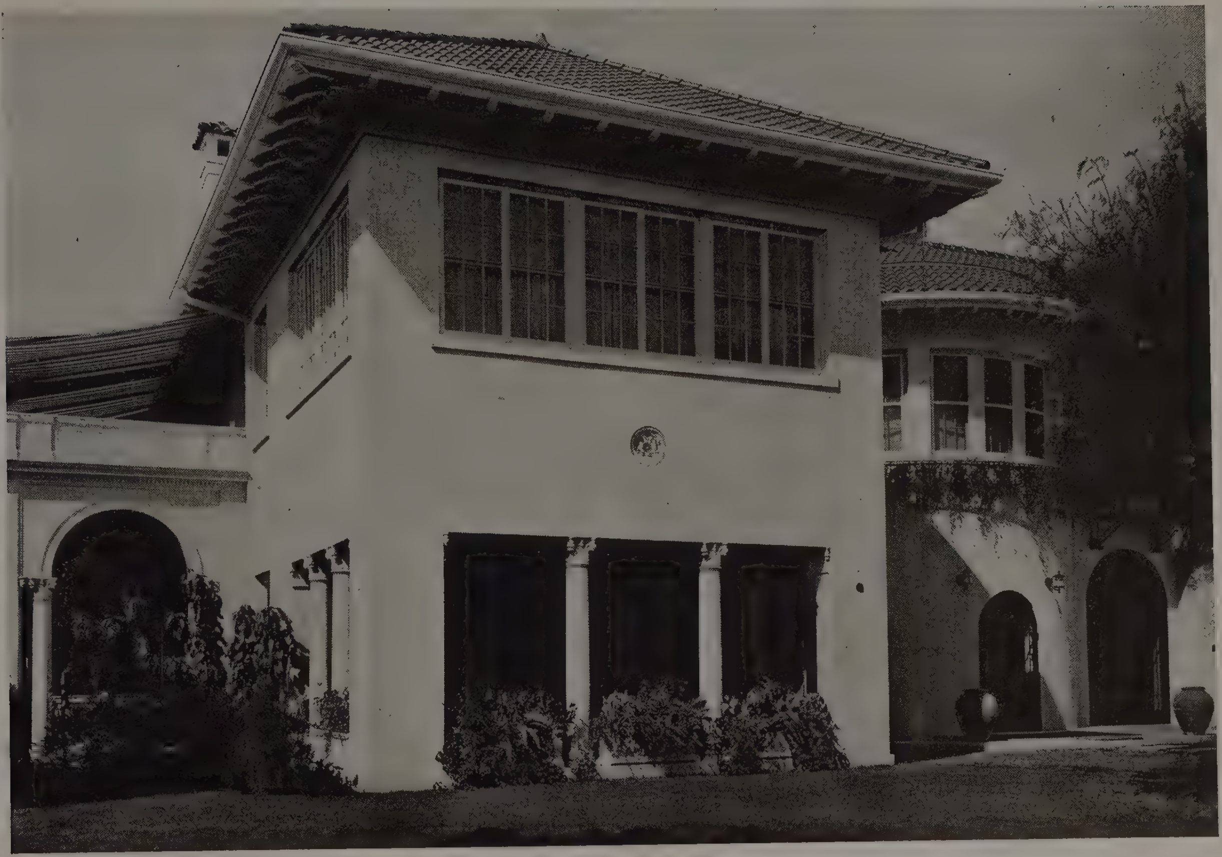
PORCH.



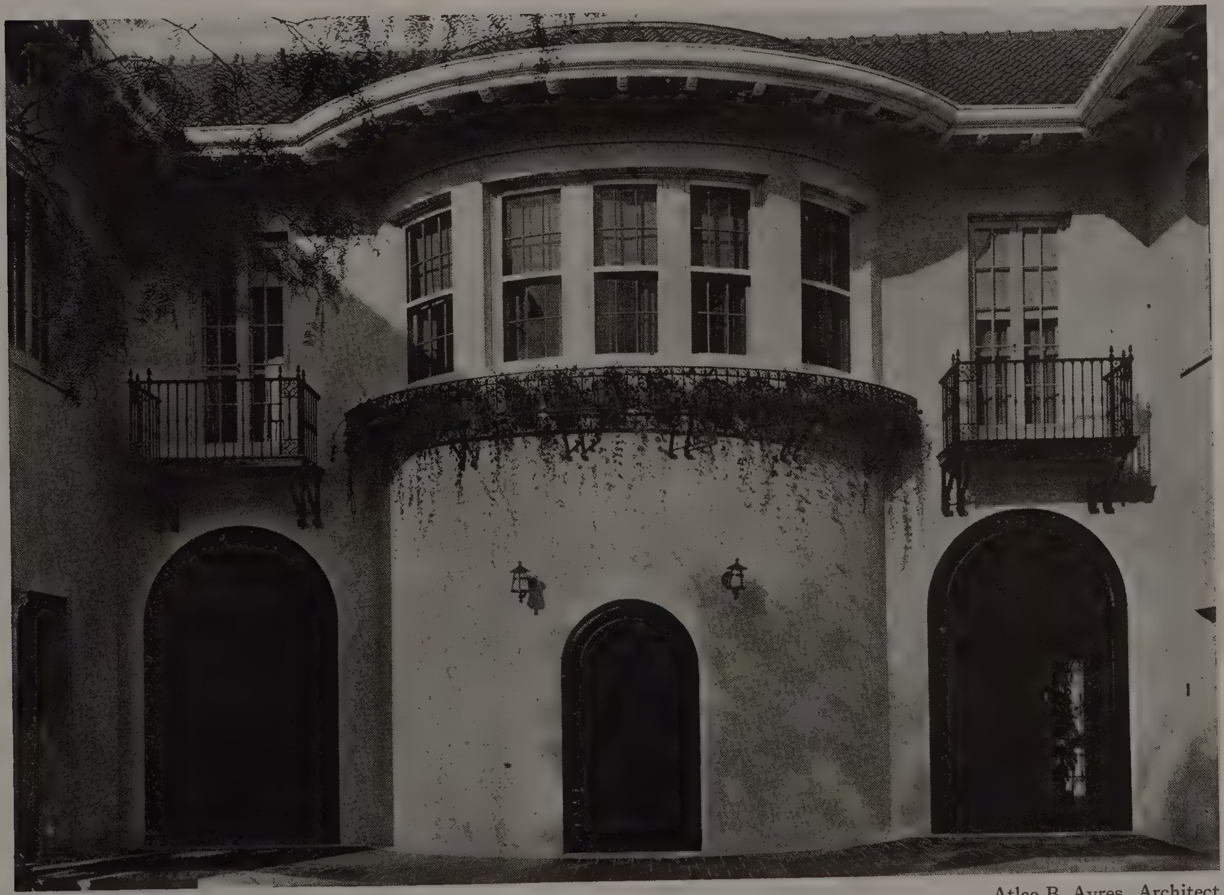
COVERED PORCH.

Atlee B. Ayres, Architect.

HOUSE, W. C. RIGSBY, SAN ANTONIO, TEXAS.



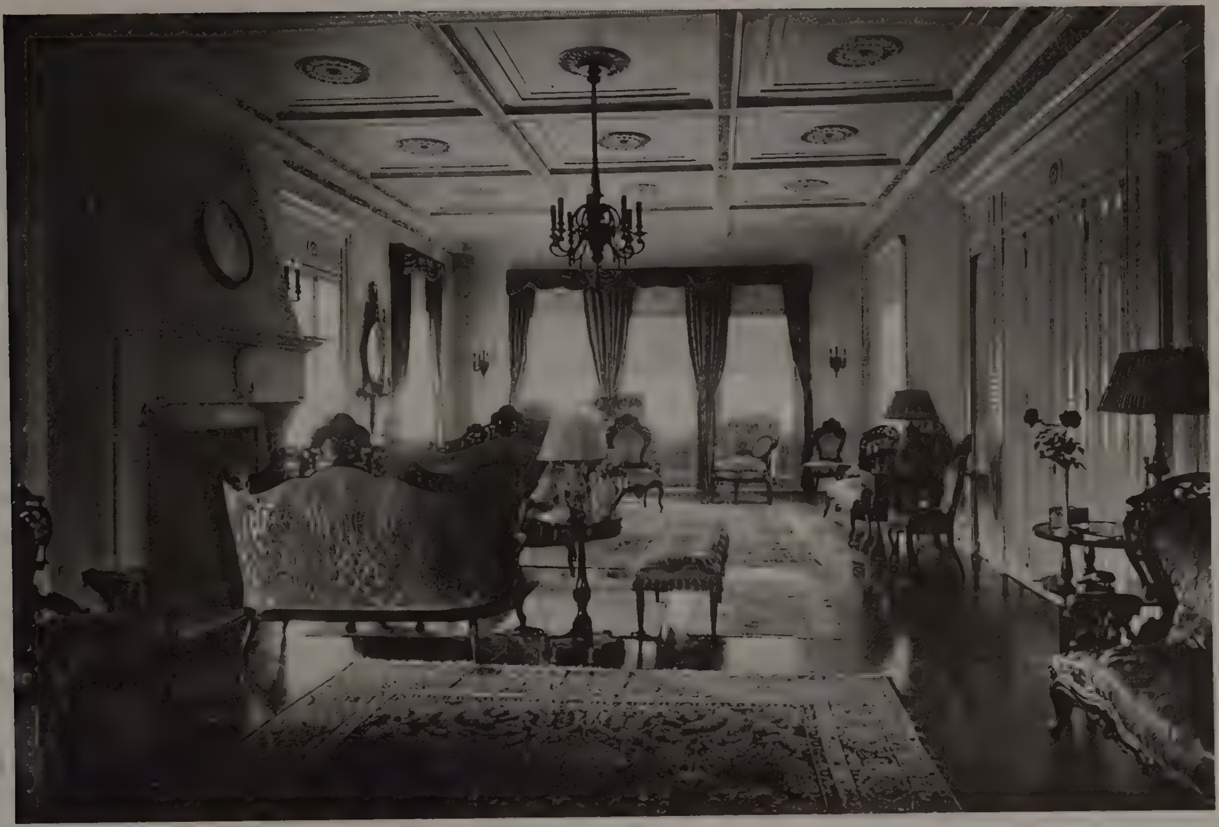
SUN ROOM.



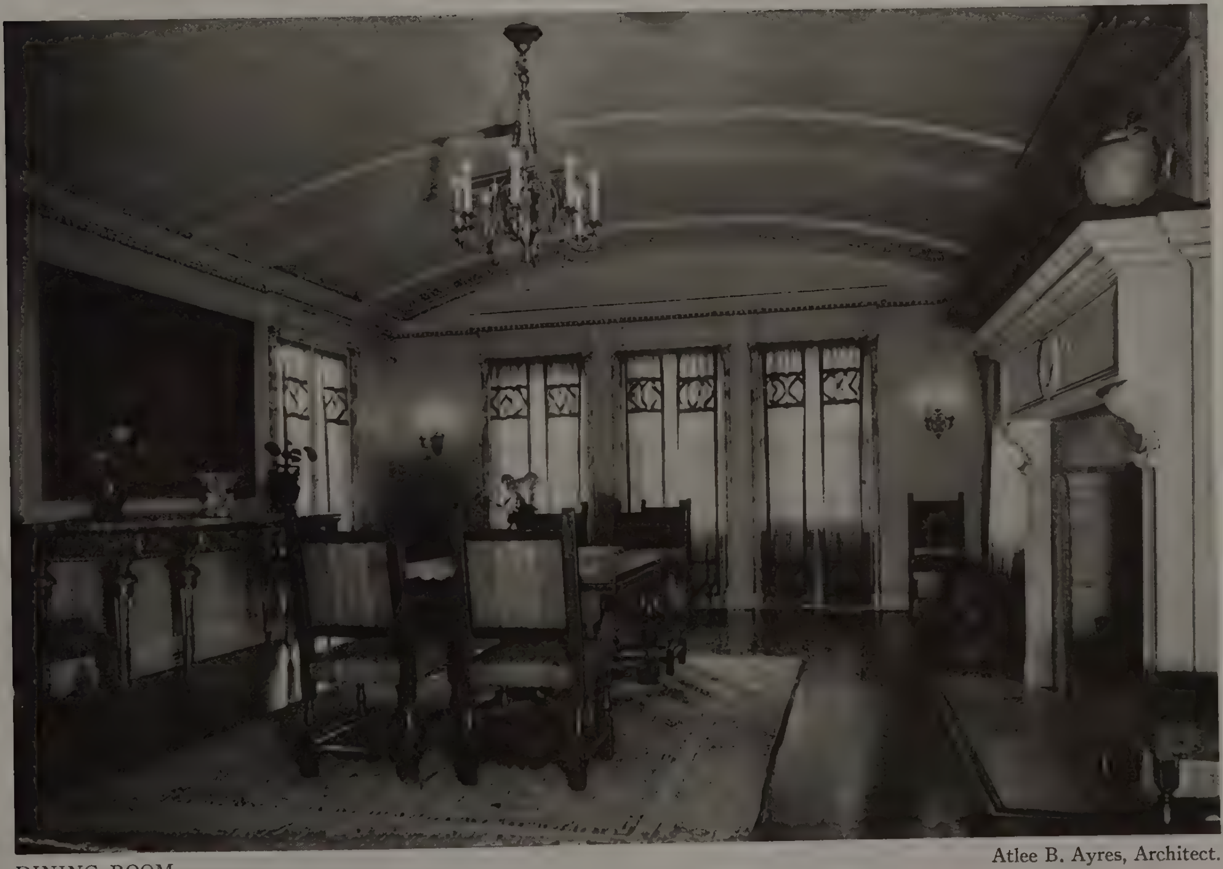
GARDEN ENTRANCE.

Atlee B. Ayres, Architect.

HOUSE, W. C. RIGSBY, SAN ANTONIO, TEXAS.



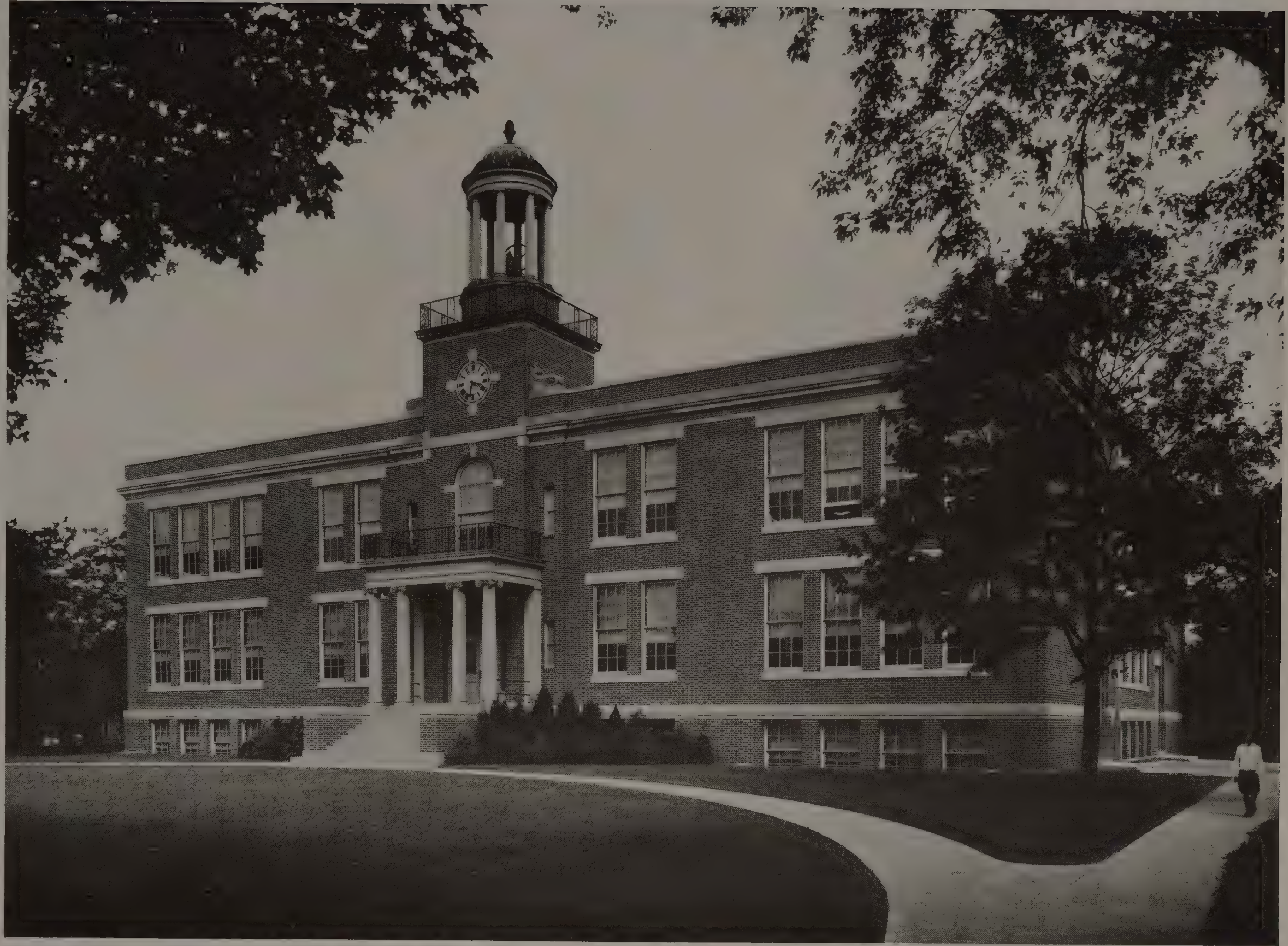
LIVING–ROOM.



DINING–ROOM.

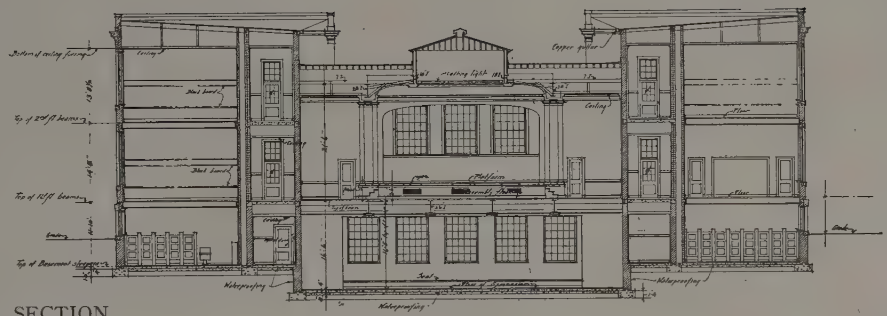
HOUSE, W. C. RIGSBY, SAN ANTONIO, TEXAS.

Atlee B. Ayres, Architect.

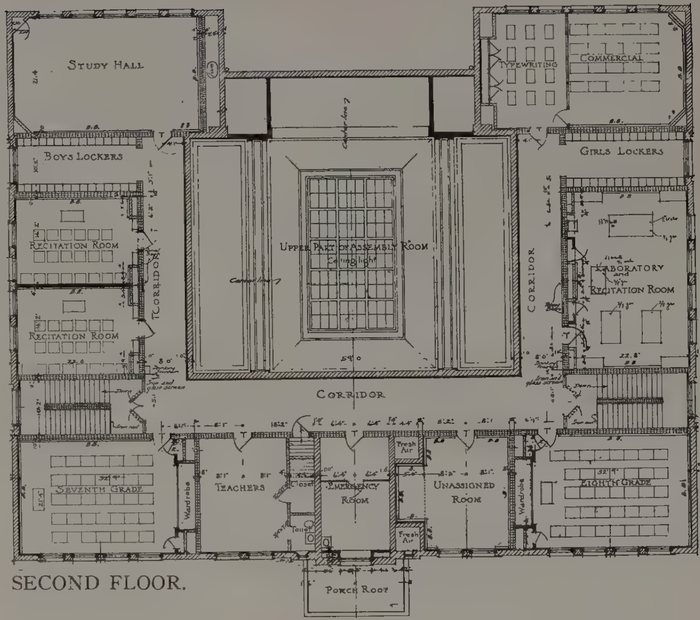


HIGH SCHOOL, WOODMERE, LONG ISLAND, N. Y.

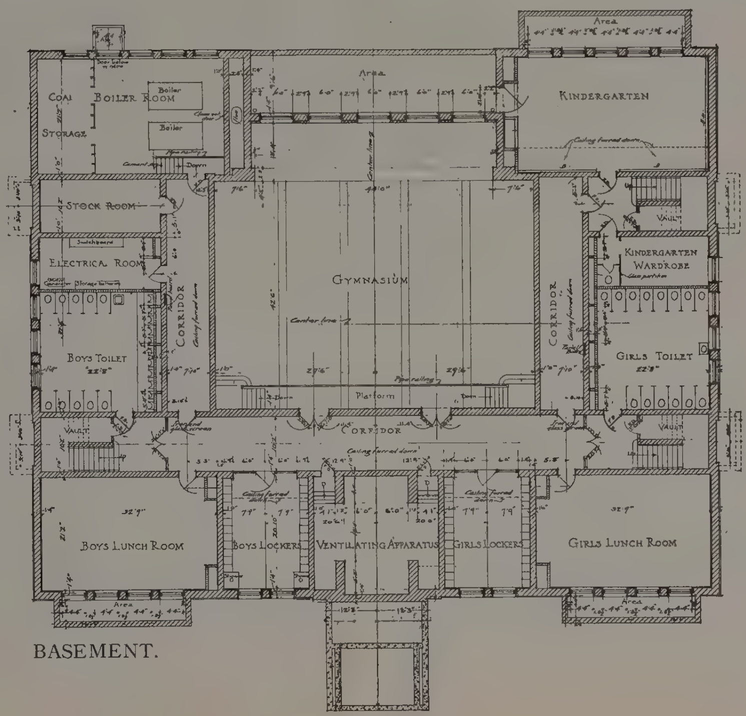
Henry Bacon, Architect.



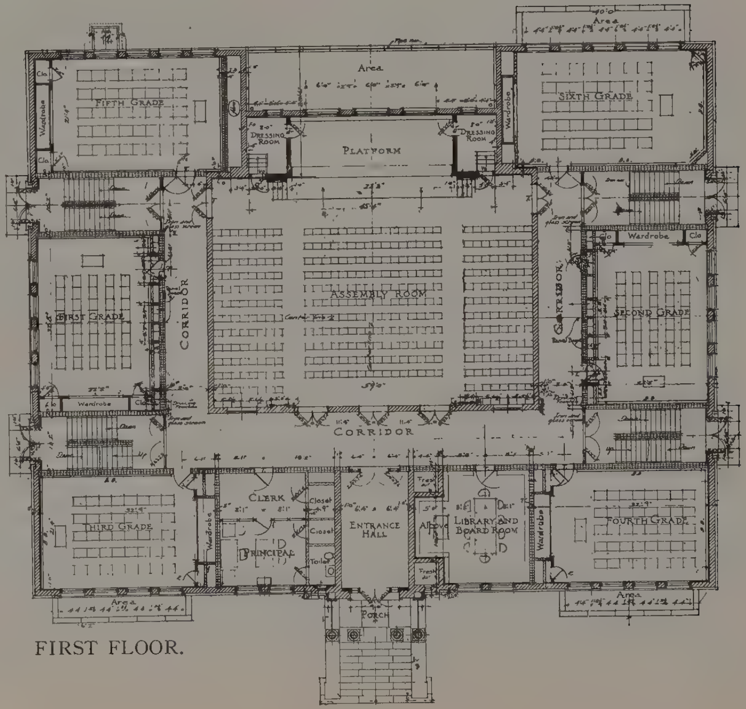
SECTION.



SECOND FLOOR.



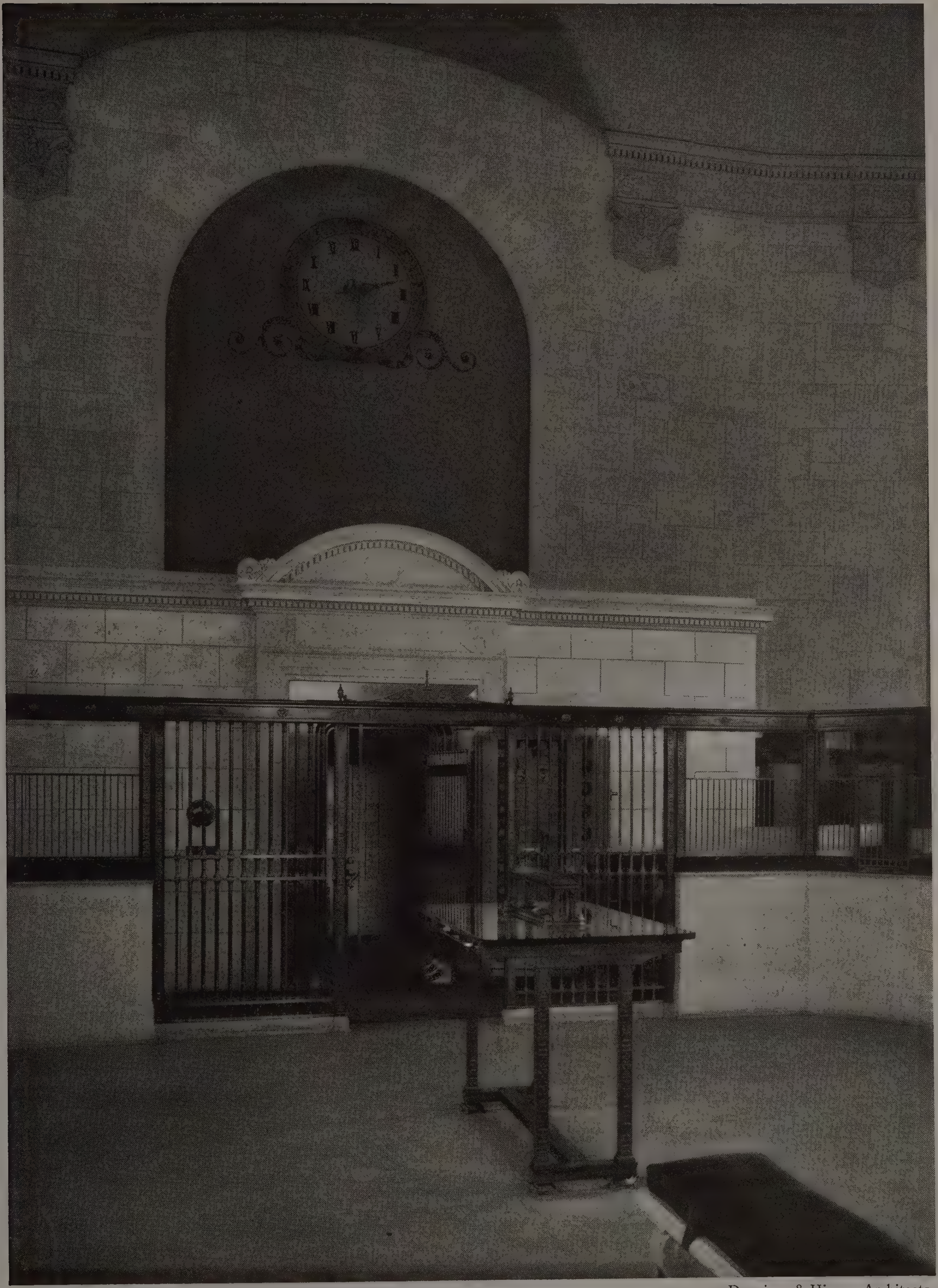
BASEMENT.



FIRST FLOOR.

HIGH SCHOOL, WOODMERE, LONG ISLAND, N. Y.

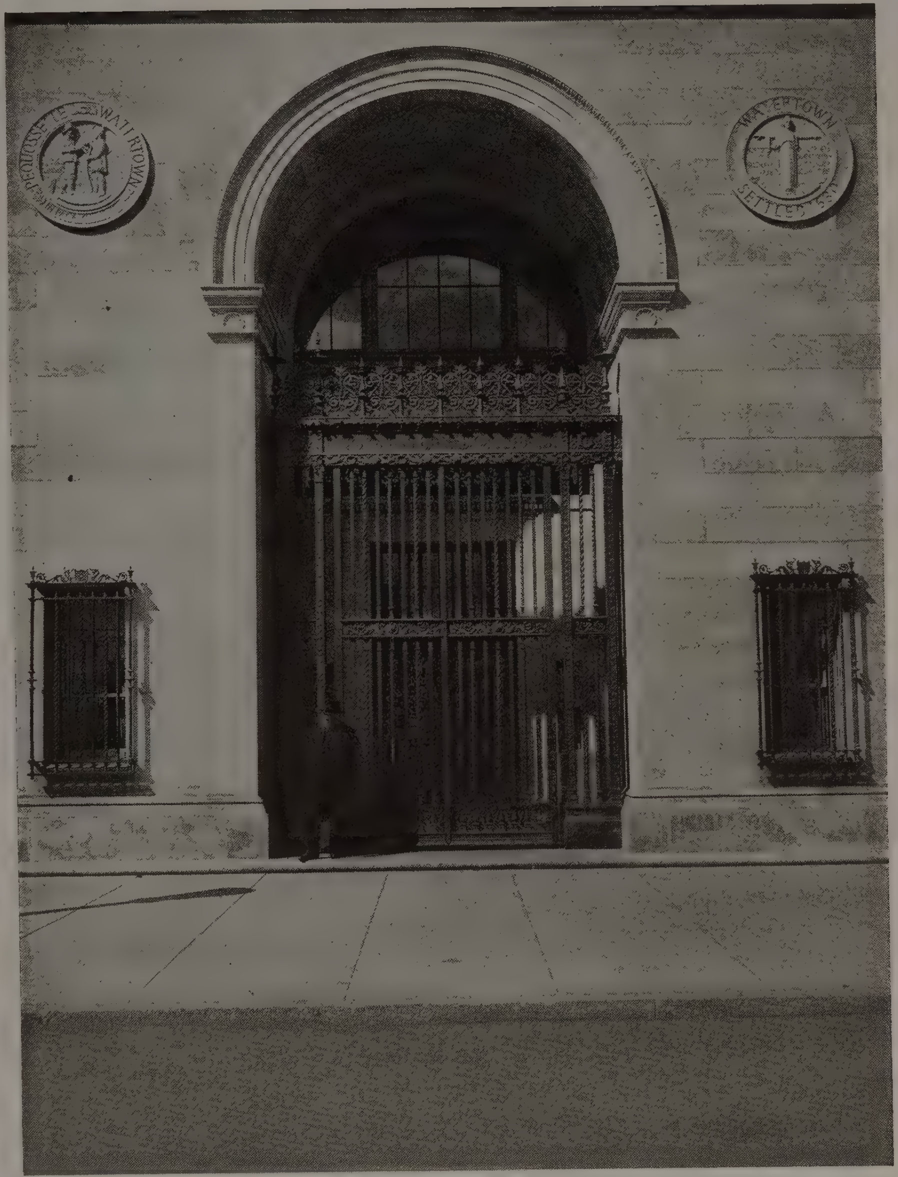
Henry Bacon, Architect.



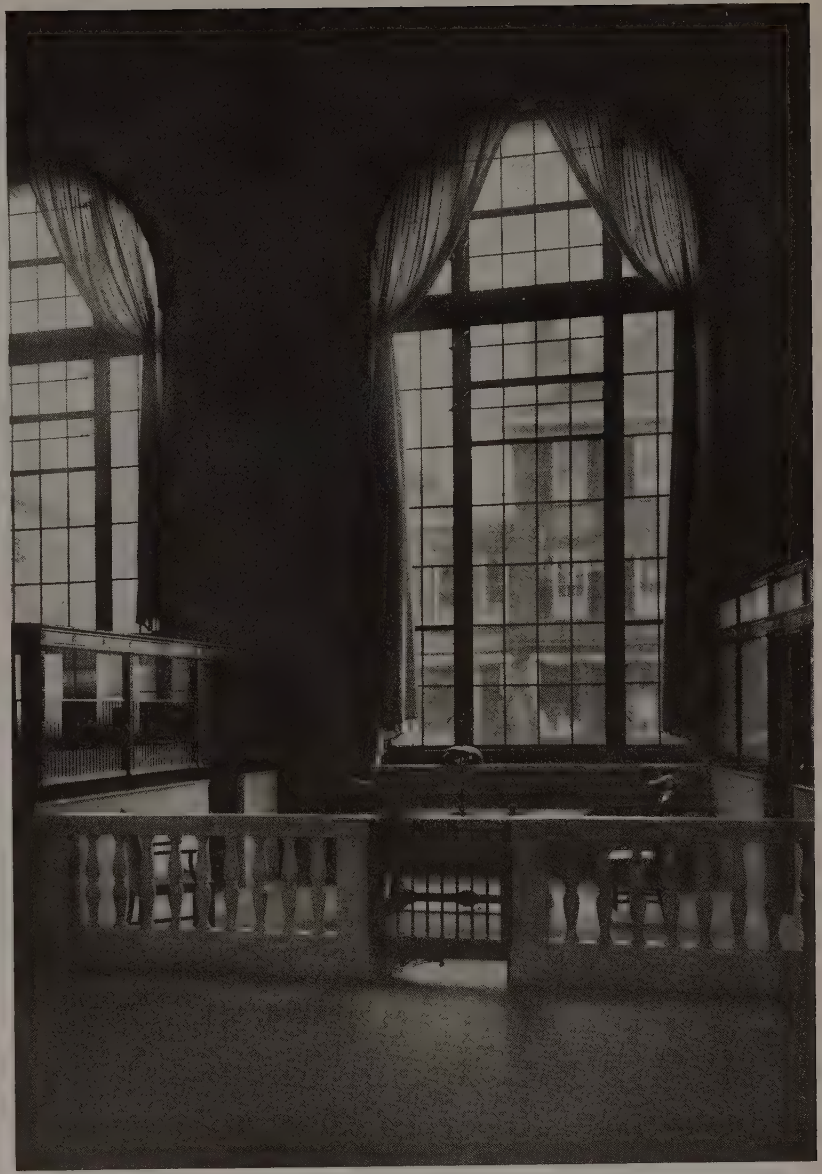
BANKING–ROOM AND VAULT ENTRANCE.

Dennison & Hirons, Architects.

UNION MARKET NATIONAL BANK, WATERTOWN, MASS.



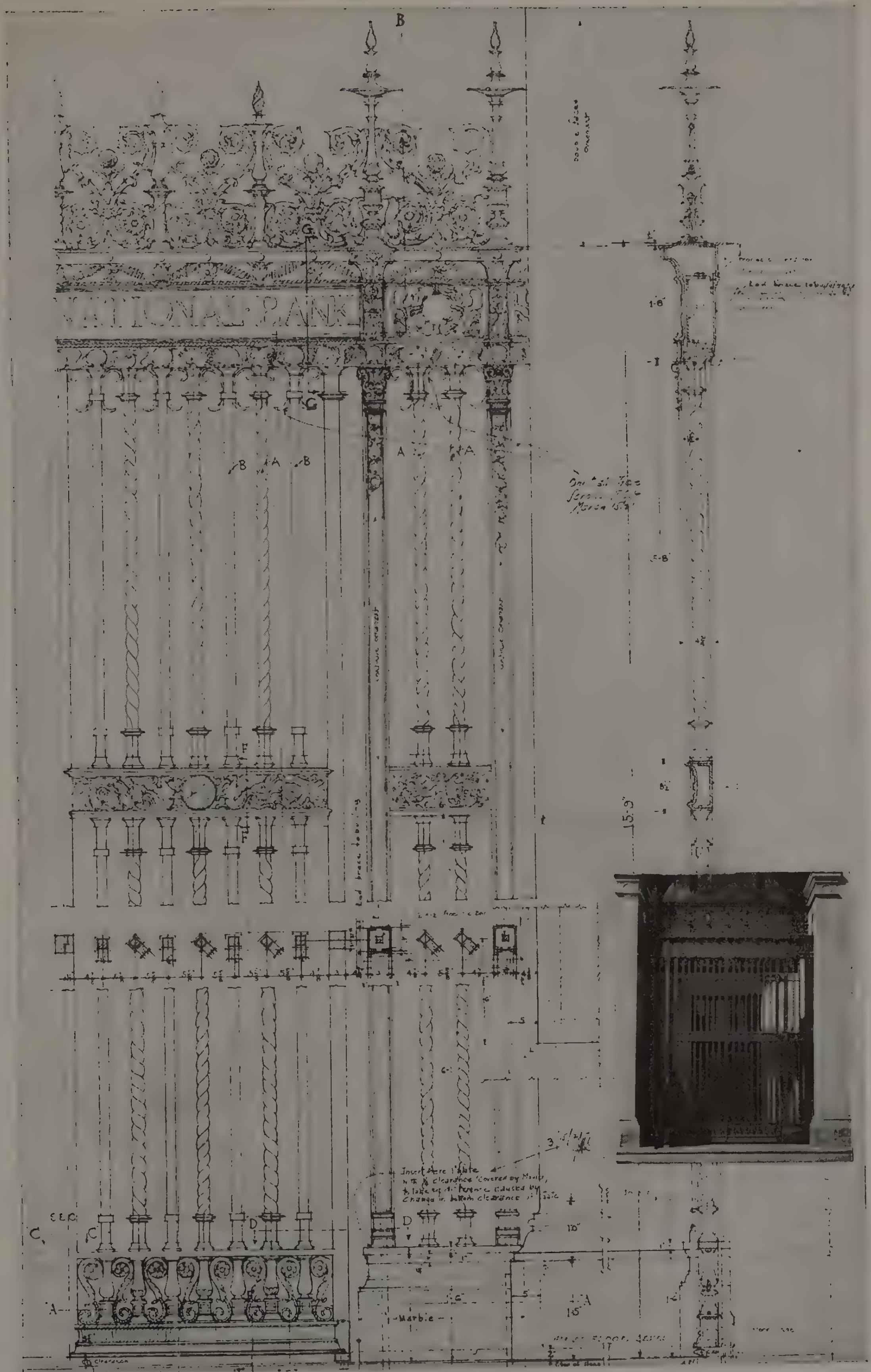
MAIN ENTRANCE.



OFFICERS' SPACE.

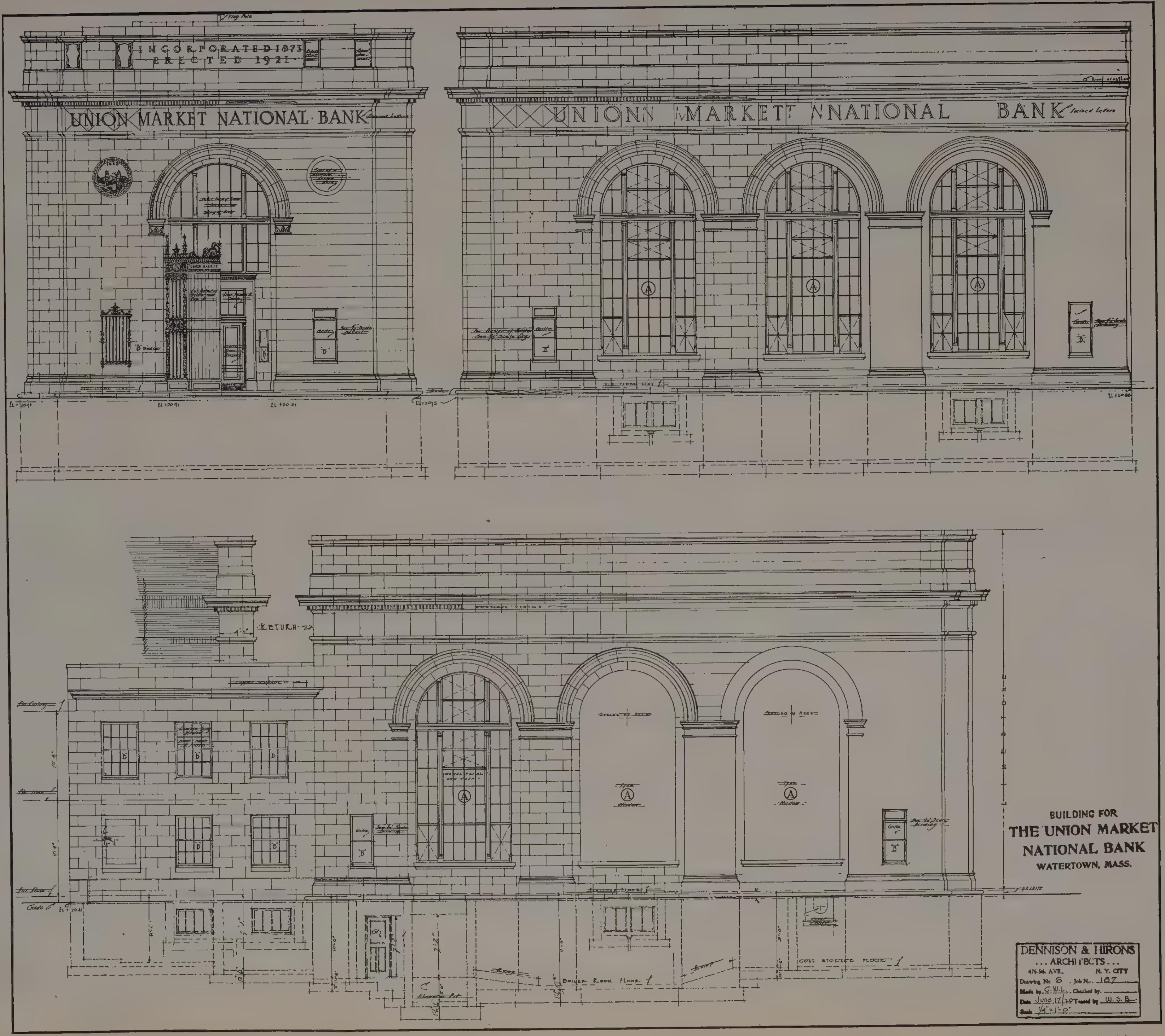
Dennison & Hirons, Architects.

UNION MARKET NATIONAL BANK, WATERTOWN, MASS.



ARCHITECT'S SKETCH, ENTRANCE GATES, UNION MARKET NATIONAL BANK, WATERTOWN, MASS.

Dennison & Hirons, Architects.



ELEVATIONS, UNION MARKET NATIONAL BANK, WATERTOWN, MASS.

Dennison & Hirons, Architects.

The Problem of the Suburban Town Bank

A BANKER once said: "Mr. Architect, I like the rear of our building best; it is so simple and dignified; it looks good to me."

"But," said the architect, "Mr. Banker, you are mistaken; there is no architecture on the rear."

This explains most architects' frame of mind when they have had carte blanche in designing a building, and especially a bank building, where the opportunity of designing in the classic tempts one to go the limit.

Ceiling decoration.

For one who has observed the progress and tendency in the design of bank buildings, it must be admitted that the use of the classic has been overdone; that most bank buildings lack individuality and that the main purpose of an imposing exterior, namely, its advertising qualities, is lost by reason of one bank's similarity to another.

Mr. Banker's preference for the rear of his building because of its simplicity is typical of the ideas of many bankers to-day. Fads in architecture, as well as in other things, have to run their course and, the Greek and Roman temples having had their day, bankers have had an opportunity to observe that the simple design outlives the ornate and is more in harmony with the purpose for which their buildings are intended.

Limited funds which force economy in design are often a good thing; it encourages the architect to simplify his building, and in these days when construction costs are 60 to 80 per cent above normal, it puts his client in a better position to charge off the excessive cost of his building.

Similar conditions confronted the architects of the Union Market National Bank at Watertown, Mass. The "rear-elevation" idea for the front and sides was not studied in vain. This building, placed on a large plaza, bounded by two of six streets which radiate from it, is to be seen at a great distance from many points. It is conspicuous for its lack of ornament and it is doubtful if an unnecessary moulding or embellishment of any kind is to be found. Its plain wall surface of Indiana limestone with well-proportioned openings gives it great dignity and simplicity.

The wrought-iron work, protecting the small openings in front and the main entrance, has been executed with great skill and refinement and relieves the building of too great a severity.

It is interesting to note the successful treatment of the corners at either side of the main entrance. Evidently, the front was too wide for the single-arch treatment and this means of reducing its width apparently eliminated the trouble. It might be added that the treatment of the corners, though unusual, is very successful and probably is accountable for the pleasing silhouette of the building.

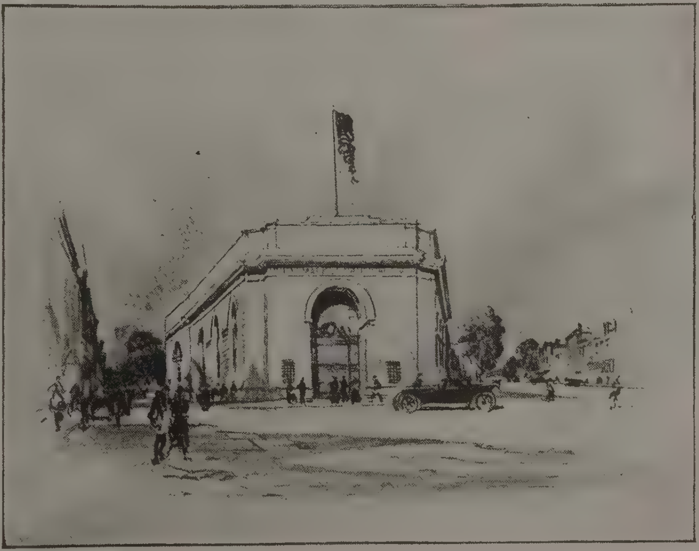
It is apparent that the plan of the building offered many difficulties owing to its irregular form, but the convenient arrangement of the interior and its charming proportions, color, and detail, while irregular, is still symmetrical and extremely impressive.

The departments of the bank are grouped about a centre public lobby, at the end of which an ornamental bronze grille protects the safe-deposit vault. At the left of the entrance is an open space for officers, to which the president's room is connected on one side and the note teller and working space on the other. To the right is another open space for the use of customers, similar to that for the officers. There is a ladies' retiring-room in the adjoining corner and the bank's savings department flanks the opposite side.

The safe-deposit vault is conspicuously shown in the rear of the room standing well above the banking screen. Conveniently near are numerous coupon booths and two private rooms.

The vault is designed to withstand fire, burglars, flood, and the oxyacetylene torch, and gives protection of the best type. Its outer covering is concrete reinforced with steel railroad rails; its inner shell is steel, in addition to which an electric lining is provided to guard against attacks of every description. The door, as fine as is known to the safe-making art, is twenty inches in thickness. The vault provides space for three thousand safe-deposit boxes and a separate department for the protection of the bank's money and securities.

The walls of the banking-room are finished with Travertine stone. The vaulted ceiling, with its penetrations over the side-windows and rear panels, is plain, sand-finished plaster, in the centre of which is a large mural decoration.


First preliminary study.

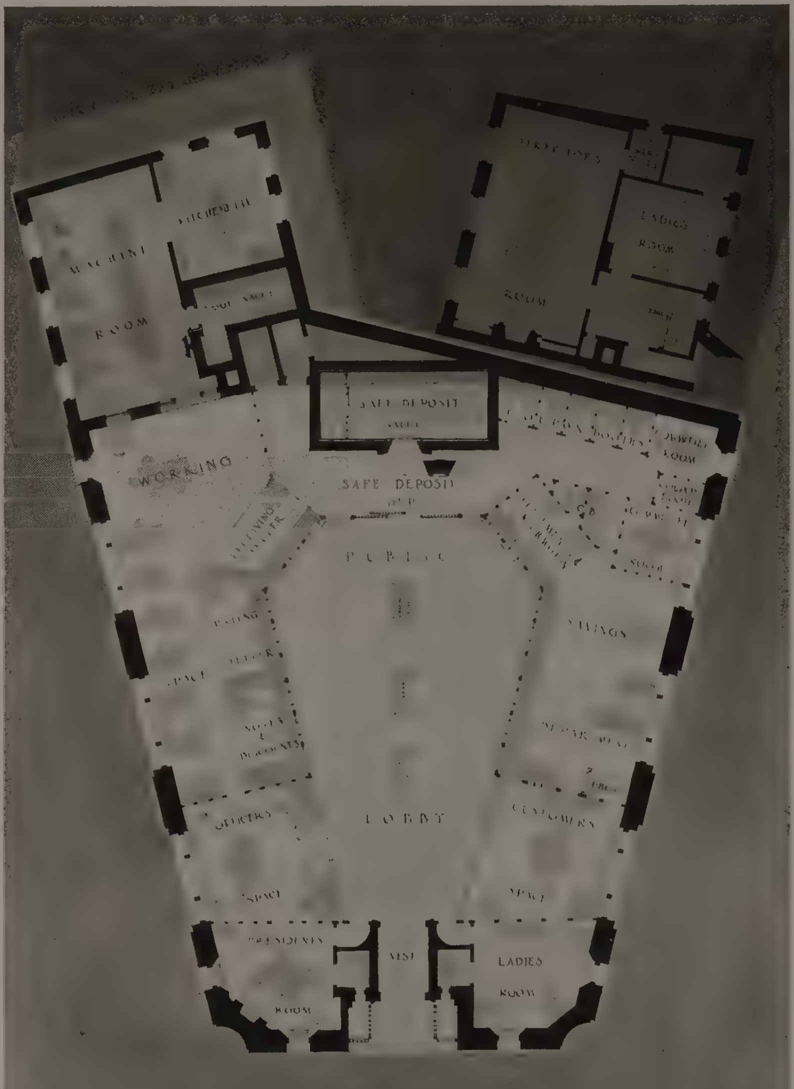
This mural, designed by the architects and executed by Andrew T. Schwartz, shows a map of the vicinity of Watertown. At the base of a decorative frame surrounding this are grouped the figures of Finance, Agriculture, and Manufacture. The map has no little historical interest, as the numerous districts shown were once a part of Watertown and this centre, after the numerous divisions were made and other towns came out of them, was known as the mother town. This idea is appropriately carried out in one of the medallions on the exterior of the building.

The large panels in the rear of the banking-room are of slightly darker tone than the walls and relieve what might otherwise be a monotonous stone surface. These panels contain appropriate inscriptions relating to the functions of a bank.

The marble employed in the banking screen is Tavernelle with a band of black and gold under the bronze top. The public space floor is Tennessee marble, and elsewhere cork tile is used.

The artificial lighting is by indirect upward reflectors placed on the back of the banking screen cornice, while during the day, abundance of light is provided by six windows, framed in metal, twenty-five feet high, of which three are placed on either side of the room.

The rectangular extension connected with the main building contains two stories; on the main floor, a machine-room, a book-vault, a clerks' dining-room, and kitchenette. The ceiling of the machine-room is covered with a special material to absorb sound. The second floor contains a directors' room and women clerks' rest room.



BANKING ROOM PLAN
THE UNION MARKET NATIONAL BANK.
WATERTOWN, MASS.

The cellar of the building is arranged for clerks' locker-room, bank storage vault, a trunk storage vault containing fifteen hundred square feet, a machine-room, boiler-room, coal-bunkers, sidewalk lift, etc.

The furnishings throughout are simple and of a color to harmonize with the surroundings. The counter work in back of the banking screen is metal, all other furniture being walnut, of which that in the officers', customers', and directors' rooms is of special design, relieving it of the usual uninteresting commercial character.

The benches in the public space with carved ends and leather tops, are of marble. The bronze work of the banking screen, simple in outline and ornamented in low relief, after models by Ricci & Zari, is full of refinement and equal to their best productions.

The check desks in the public space, with their unique lighting devices, are especially beautiful.

An interesting device for the display of advertising matter is provided in the form of an ornamental case in the lower part of one of the side windows, facing the most important thoroughfare. Advertising material is too often permitted to disfigure the interior or exterior of bank buildings and this excellent means of solving the problem would seem to be a step in the right direction.

Swimming-pool, Estate Bronson Winthrop, Syosset, Long Island, N. Y. Vitale, Brinckerhoff & Geiffert, Landscape Architects.

Broad grassy lawns, uniform evergreen screen, and an oval pool.

When Contractors Invade the Architect's Field

By Mr. F. E. Davidson

A. I. A. and President of the Illinois Society of Architects

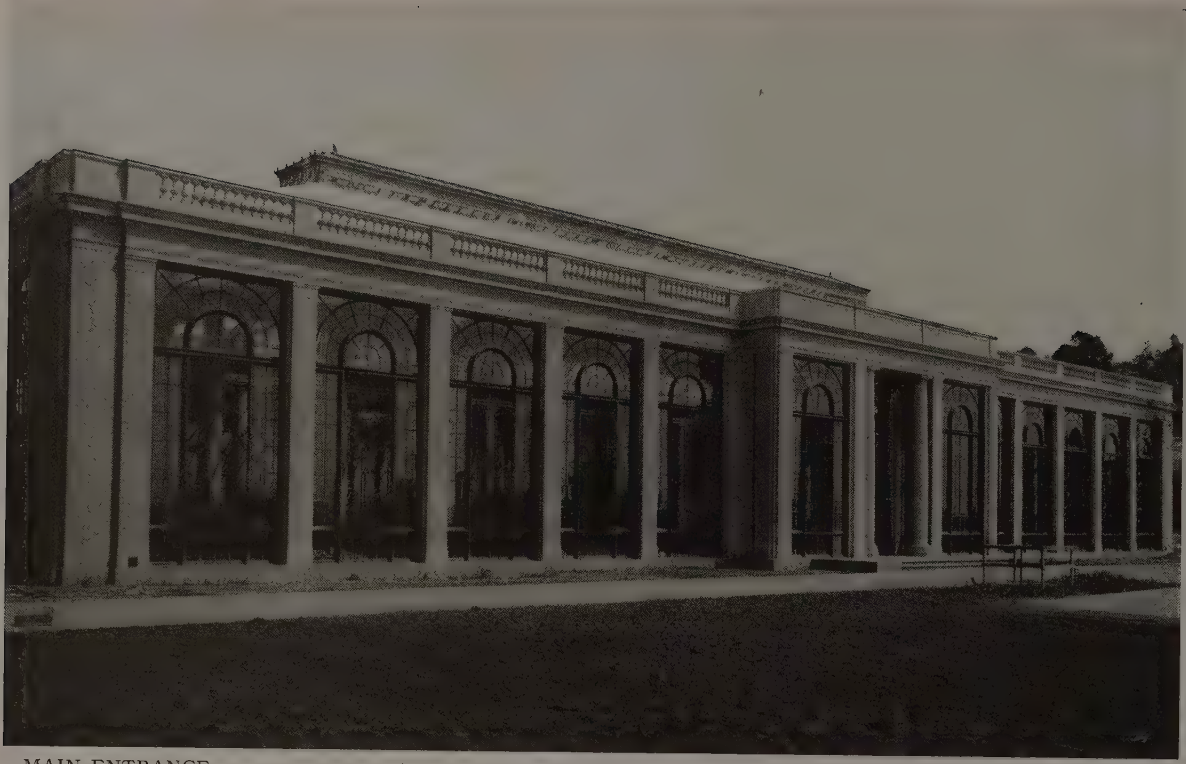
THE matter of co-operation between the architect and builder is a very simple every-day proposition and in its fundamental elements is no different from any other instance where co-operation is essential to the best development of any operation in which men are engaged.

I have often wondered to what extent the present apparent lack of co-operation between the architect and the builder may be charged to the now quite general requirement of the various States that the State shall control and regulate those calling themselves architects, and the tendency, all too apparent, for builders to disregard laws regulating the profession and to assume that they are a law unto themselves. The most responsible and best-known builders recognize their proper field of usefulness and rarely, if ever, trespass upon the work of the profession, but need I tell you of the thousands of cases where the contractor advises an owner that the services of an architect are a useless luxury and that he, the builder, can plan equally as well as any architect? I have no sympathy with those who conceive it to be the function of the builder to be also the designer, nor have I any sympathy with the suggestion made in some States that the State should license contractors. I can conceive of nothing more disastrous to the building industry, to the business of builders, to our profession as architects, than to place the building industry under State control, as was some time ago recommended in the State of New York when a proposal to create a State trade commission to regulate the building industry was defeated.

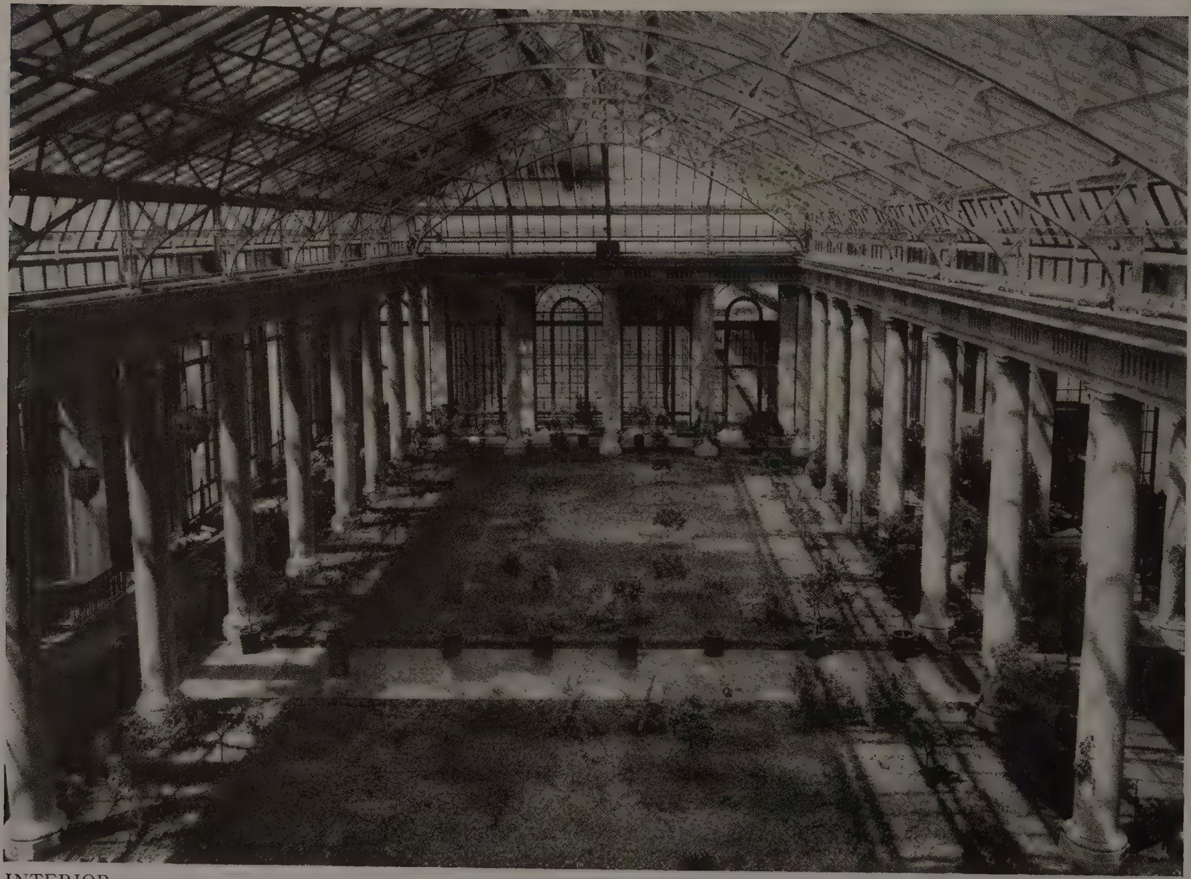
The profession of architecture is unalterably opposed to the architect who tries to build on the side and may I suggest that contractors just as unreservedly outlaw the builder who tries to play architect on the side. This is not a trade-unionism doctrine. It is common, every-day horse sense.

Many builders, while they give lip service and hand applause to the recognition of the field of the architect, alone with the owner forget their Sunday profession by Monday practices in order to get the edge on a competitor. They talk about the architect being necessary only to himself. They tell the owner that they can provide all the plans needed to secure a building permit and to construct the building, and many times, I regret to say, they induce the owner to fall for the "bunkum," and with what result? The owner who believes them is either a fool or a crook. He is either a man who knows nothing whatever about planning or building problems, or he is a man trying to get something for nothing, and right here will be seen the danger-signal of trouble ahead.

Not knowing the builders' problem, the owner is not sympathetic to it. He has not either the indulgence or the instinct to be sympathetic with them and remember in these cases their appeal to the architect is cut off. An architect in his professional capacity is an owner's professional personality.

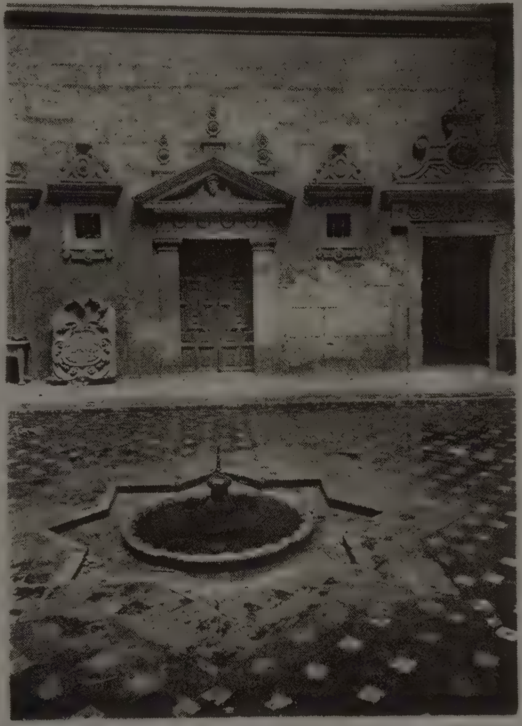


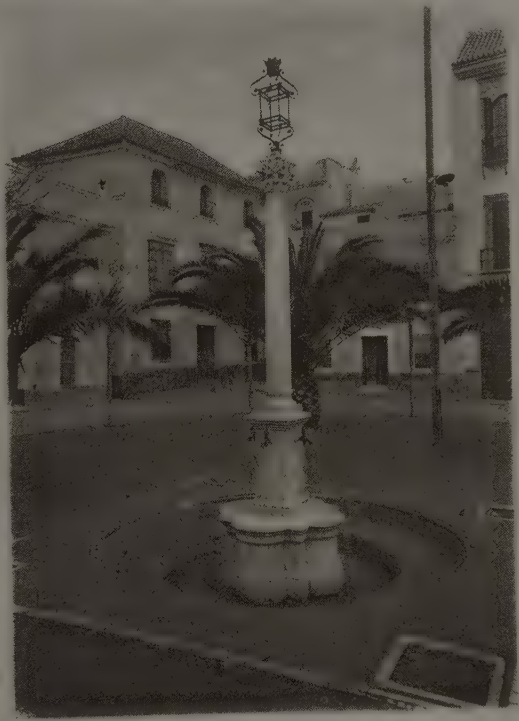
MAIN ENTRANCE.

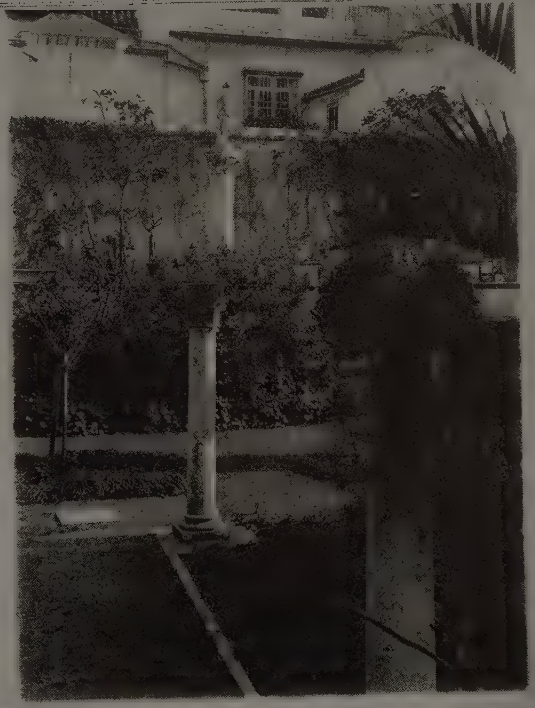


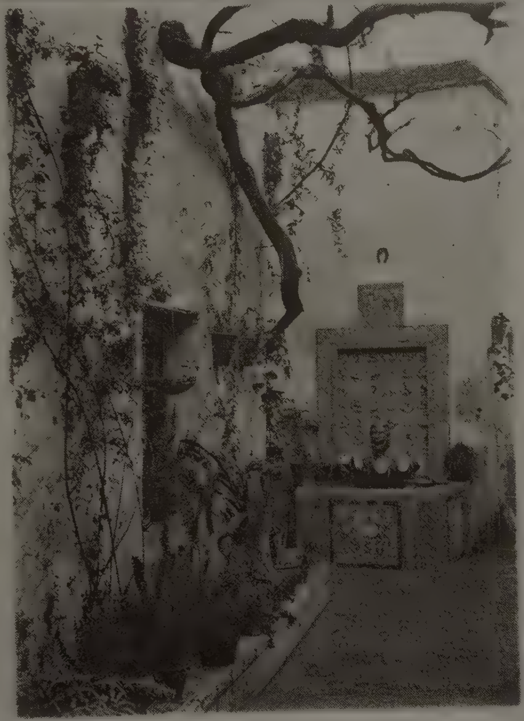
INTERIOR.

ORANGERIE, ESTATE PIERRE S. DU PONT, WILMINGTON, DEL.







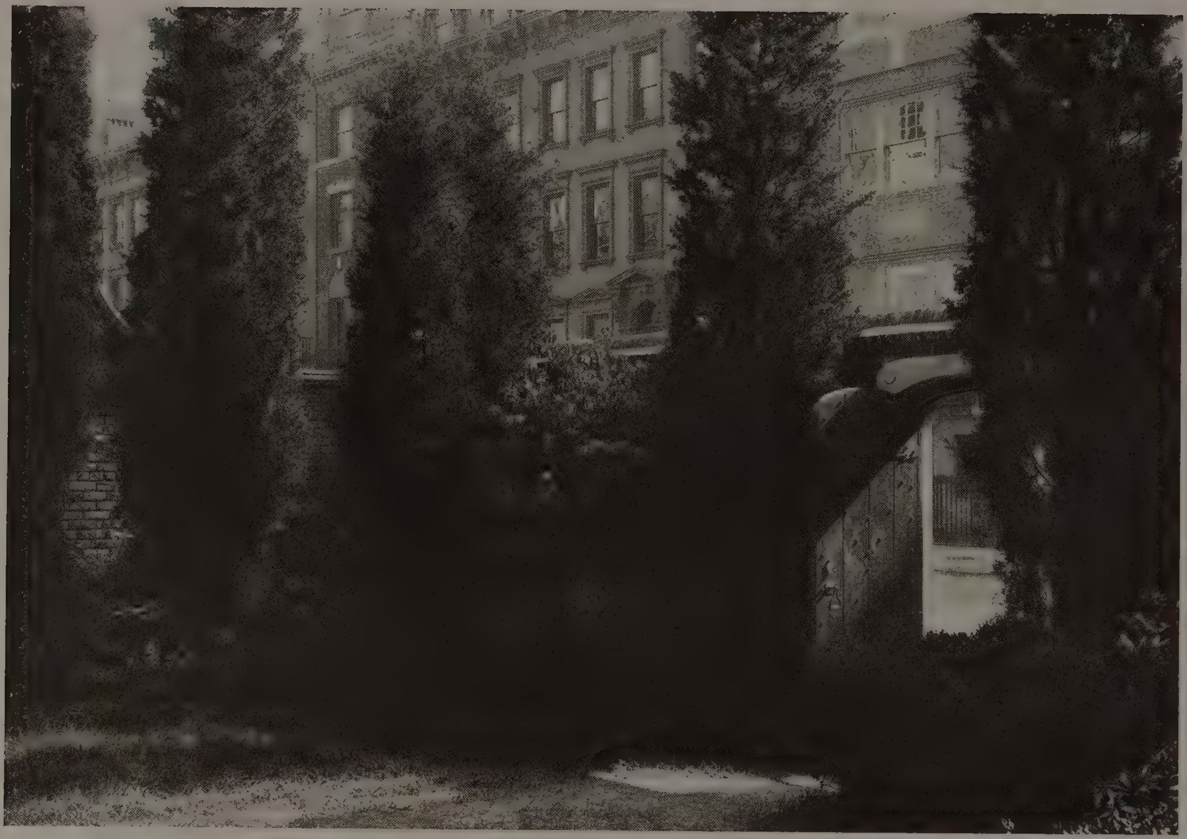


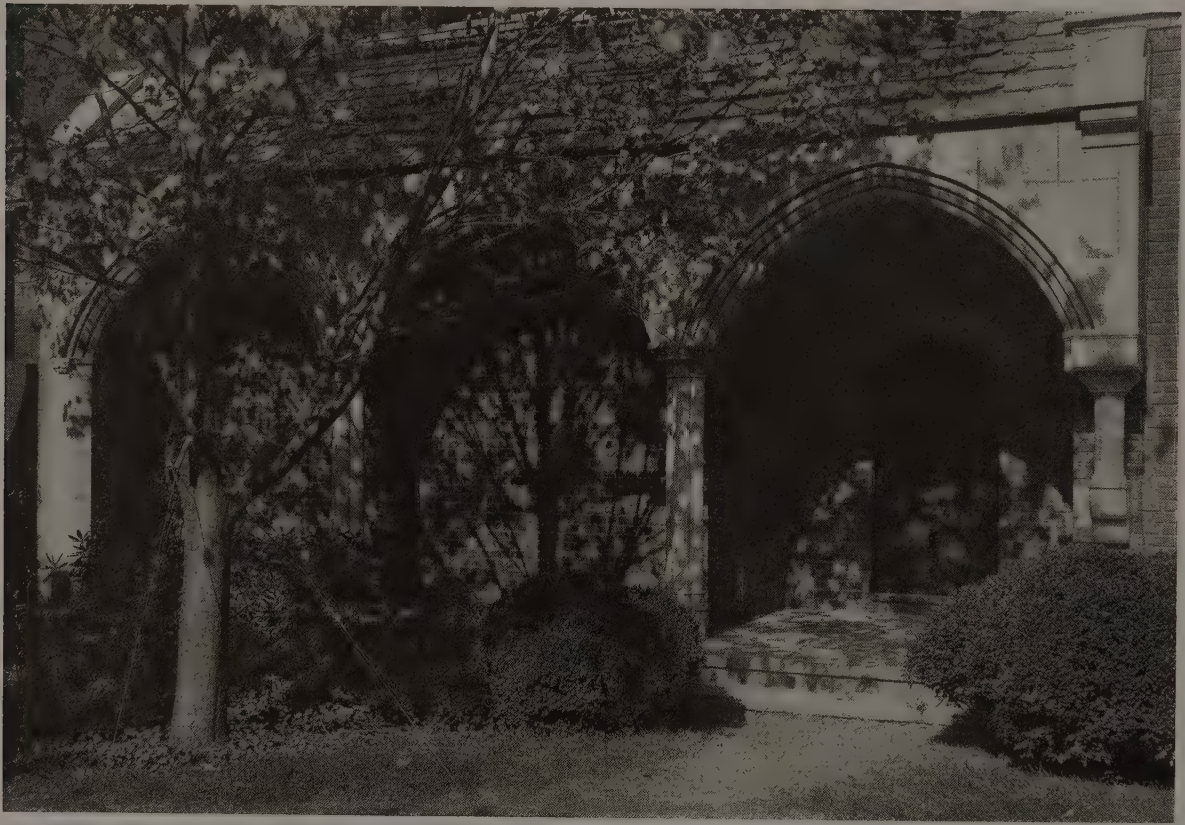
A. Courtyard with fountain in form of a star. Pavement inset with tile etc.

B. The column is used to hold ornamental lantern, and also has outlets for drinking.

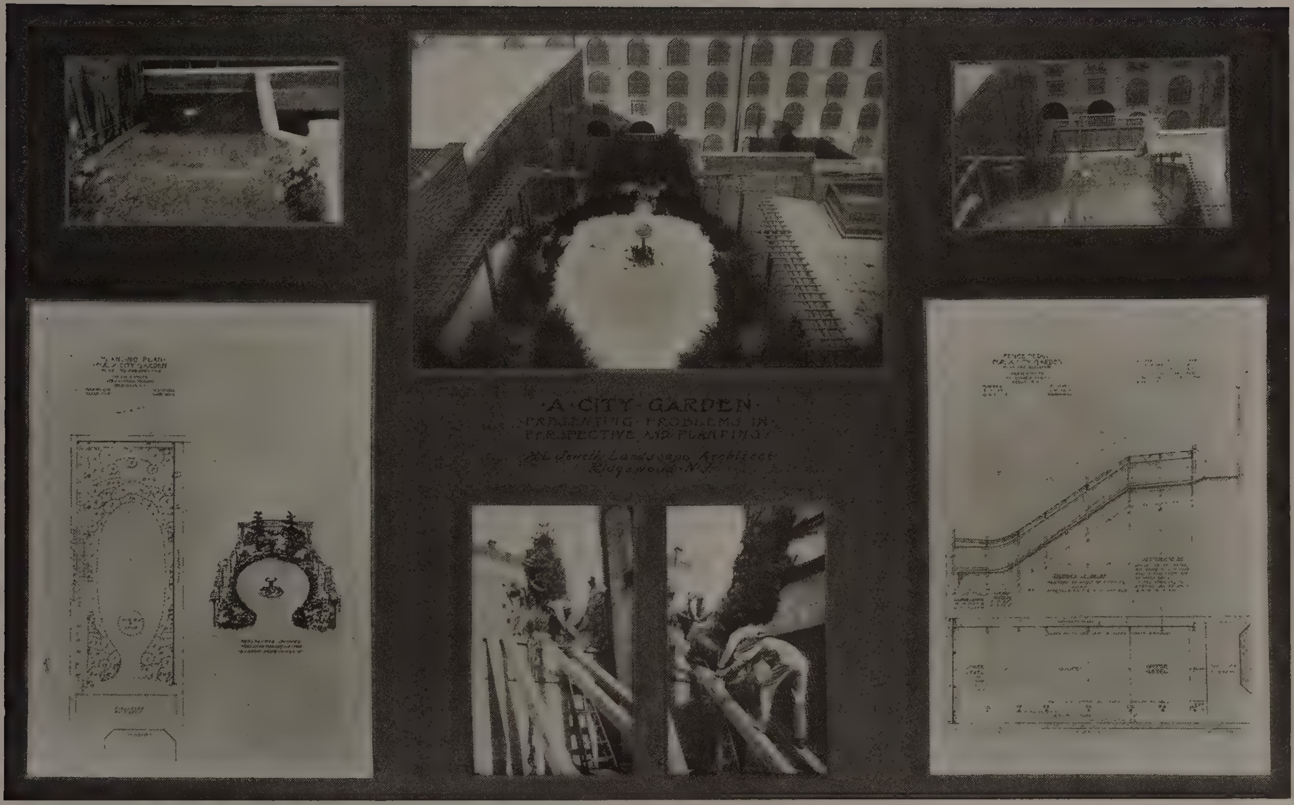
C. Small pots filled with flowers are set in columns of marble.

D. Tile fountain in blues and yellows with vines clinging to sidewall.





GARDEN OF CITY RESIDENCE, THOMAS W. LAMONT, NEW YORK. Walker & Gillette, Architects.


A CITY GARDEN
PRESENTING PROBLEMS IN PERSPECTIVE AND PLANTING
M. Sewell Landscape Architect
Ridgewood N.J.

A City Garden

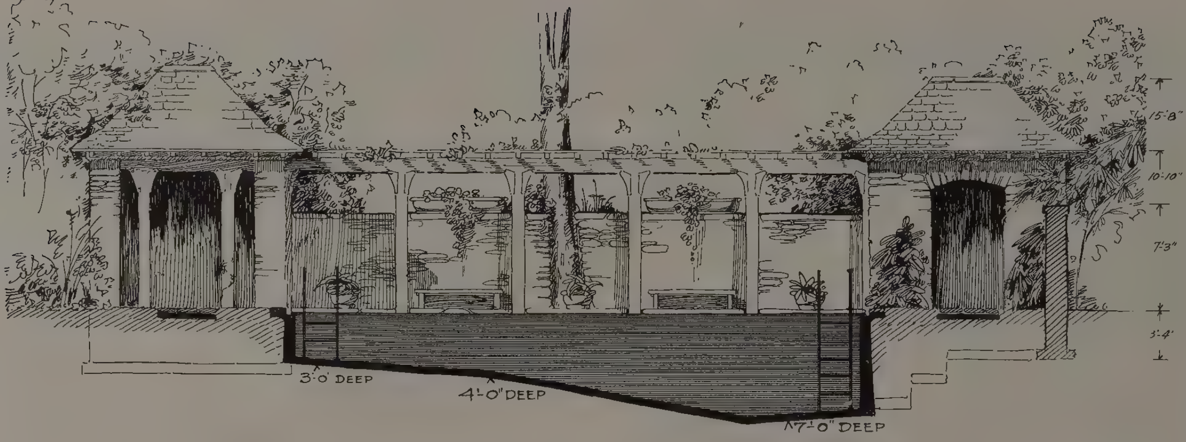
By Marjorie Sewell, Landscape Architect

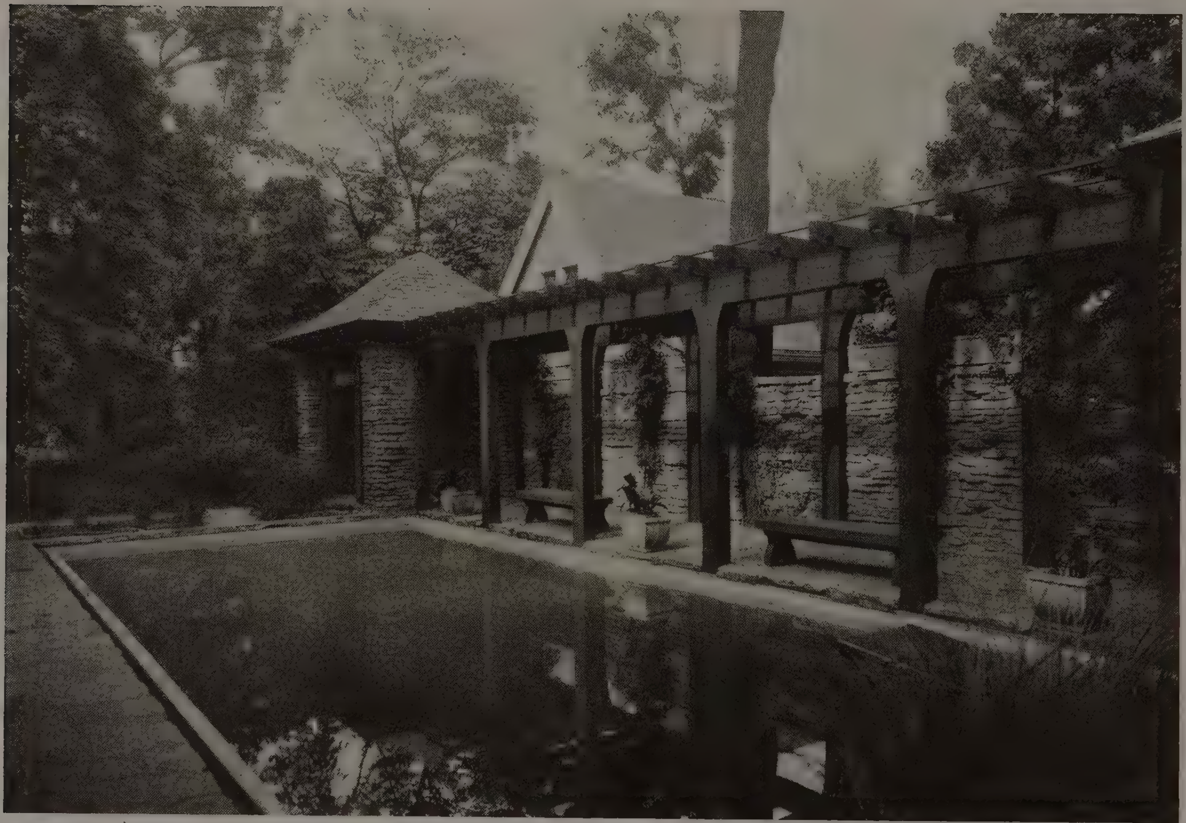
ON first considering the possibilities of this city property for a garden site the landscape architect was overwhelmed by a feeling of despair. Then, as a careful analysis of the situation revealed one difficulty after another, the problem became an intensely absorbing one.

Exposure to wind, protection from sun, a permanently damp and acid soil condition, not to mention an irregular boundary of concrete retaining walls, should have been sufficient limitations for any garden. But owing to the peculiar grading and the angle of vision, the property was apparently telescoped to one-third its actual size. This extreme foreshortening was partly due to a bank which sloped away from the house at an angle of thirty-four degrees, and partly to the fact that the first-floor window, from which the garden was to be viewed, was in reality three stories above the upper level of the garden. Had the house been located at the bottom of this slope an interesting terrace treatment could have been used. However, under the existing conditions the bank appeared almost level and the lower end of the garden seemed to rise. It was therefore decided to treat the whole plot as one simple unit, from a bird's-eye point of view, and as far as possible to eliminate the lines and angles of the existing boundaries.

Along the north and west property lines a wooden fence topped by lattice was constructed to conceal the concrete walls, and to serve as windbreak and heat reflector. On the south side, where no further protection was desired, the fence was balanced by posts and lattice only. Again, because of the view from above, the lattice was placed horizontally and the fence posts carried up to support it, pergola fashion. For interest and variety in this simple construction, the posts were placed in front of the paling and, together with the lattice, painted a lighter shade of gray.

Having provided a more restful boundary for the garden, it was now desirable to place the centre of interest in the apparent centre of the garden. This was finally located at the edge of the upper level and in line with the window, several feet off the true axis. In order to appear round, the circular bed was made oval. And in the same way all planting operations were based upon perspective rather than plan and elevation. Shrubs were selected according to their breadth instead of height, and along the slope so spaced and planted as to counteract the effect of foreshortening. Only those varieties adapted to shade and acid soil could be depended upon for such adverse conditions. Hardy evergreens were chosen for winter effect, and to lighten their solid masses

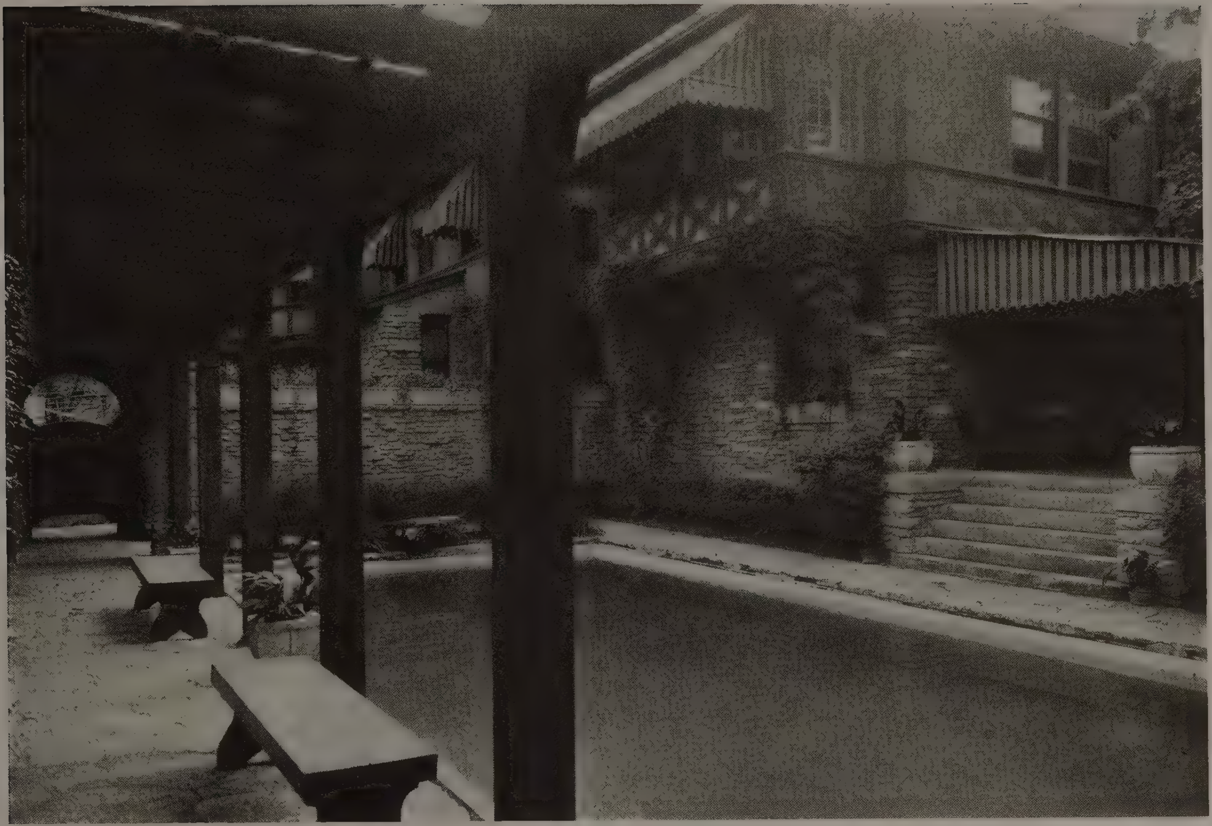


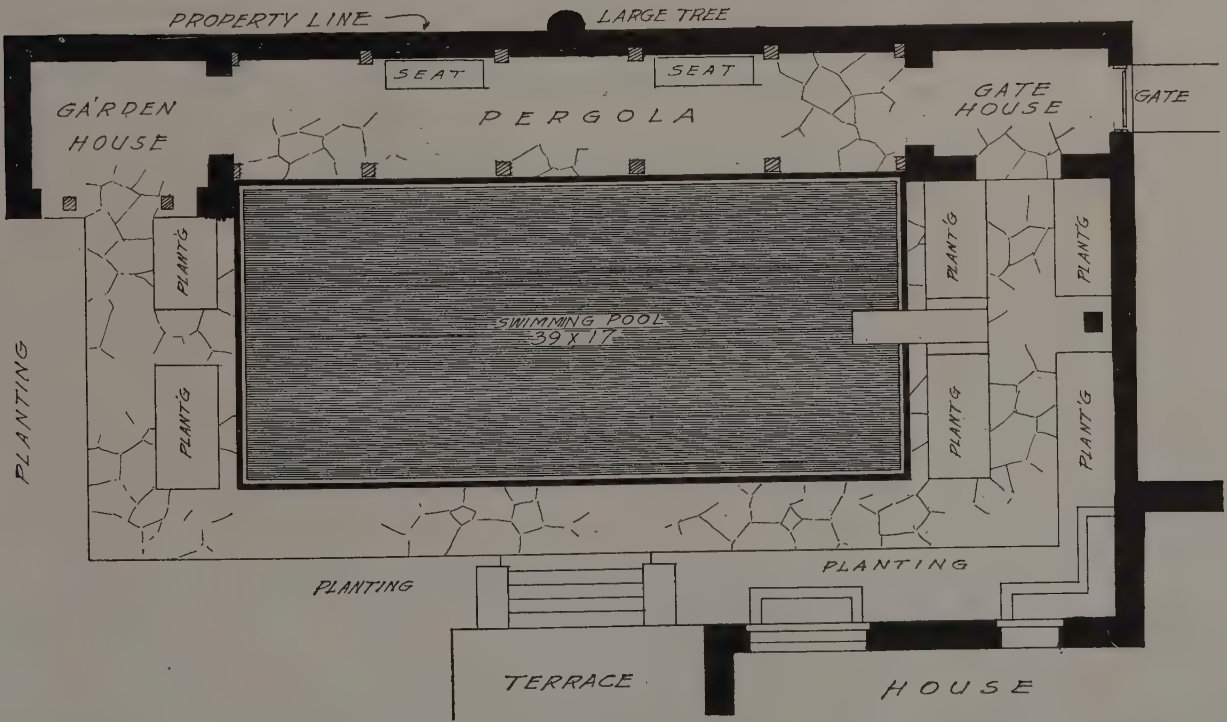


Swimming-pool, Frederick J. Flach, Cincinnati, Ohio. Tietig & Lee, Architects. William Pitkin, Jr., and Seward H. Mott, Landscape Architects.

spring and fall blooming shrubs and vines were introduced. The planting operations required infinite patience and skill. Each plant was delivered with a ball of earth, and, according to its size and weight, either lowered through the cellar or hoisted over the retaining wall.

Having tried to solve each problem in turn, the greatest drawback still remains. Of course the atmospheric conditions can be alleviated by thorough spraying to remove soot and dust from the leaves of the plants. It is also interesting to note that for the best results in city gardening Mr. Hicks recommends a system of transplanting every few seasons, or, in other words, a summer's vacation in the country for a tired city plant.





PLAN. Tietig & Lee, Architects. William Pitkin, Jr., and Seward H. Mott, Landscape Architects.

SWIMMING-POOL, FREDERICK J. FLACH, CINCINNATI, OHIO.

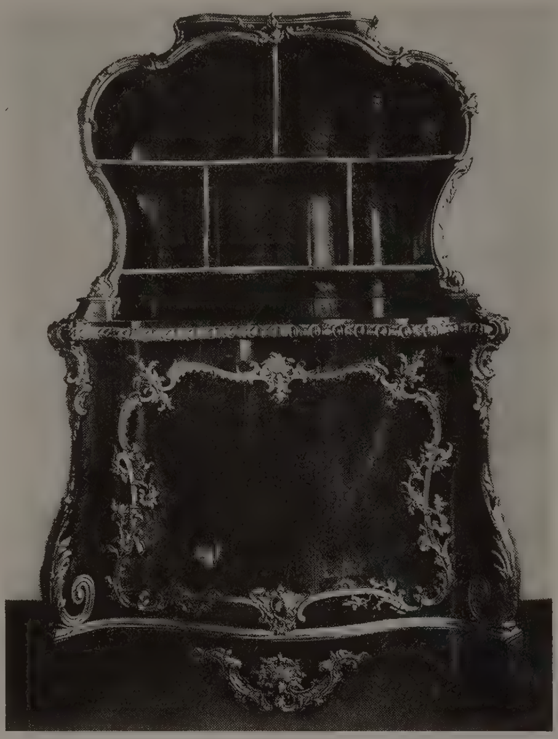
Charles Cressent—1685-1768

By Henry Coleman May

MICHELET, speaking of art, said: "The regency was a century composed of seven years." If, in the same spirit, one goes on to consider its development from the death of Louis XIV to the end of the eighteenth century, one would conclude as well that this period of time represents in accomplishment not merely one but several centuries, so rapidly and intensely did the progressive affinements of its art occur.

Although our subject deals with one who gave an impetus to his special branch of art which continued throughout the greater part of the seventeen hundreds, Charles Cressent, nevertheless, primarily represents the taste of the regency.

After the death of the Grand Monarque, in 1715, and during the minority of Louis XV, Philippe, Duc d'Orléans, became Regent of France. His court, up to the time of his end, in 1723, was notorious for its dissipation. The etiquette which had obtained so strictly while the long preceding reign had lasted, was greatly relaxed during those seven succeeding years. In private life, liberty grew into license. The necessity of a continued "tenue" inseparable from the pompous publicity of Versailles lessened to a very appreciable extent as the court was removed from that place to Paris, into the more intimate atmosphere of the Palais-Royal or the Luxembourg. Simultaneously with the closing of the ancient order, various centres sprang up in the capital. In the salons of the nobility coteries began to form around men and women, particularly the latter, who represented new developments in ideas and taste. After an era of continuously regulated behavior individualism began anew to reassert itself. With the names of Conti, Montesquieu, Hénault, and Voltaire are associated a group of brilliant artists whose talent blossomed into a vivid originality once Lebrun's goddesses and Mignard's duchesses had ceased to hold sway.



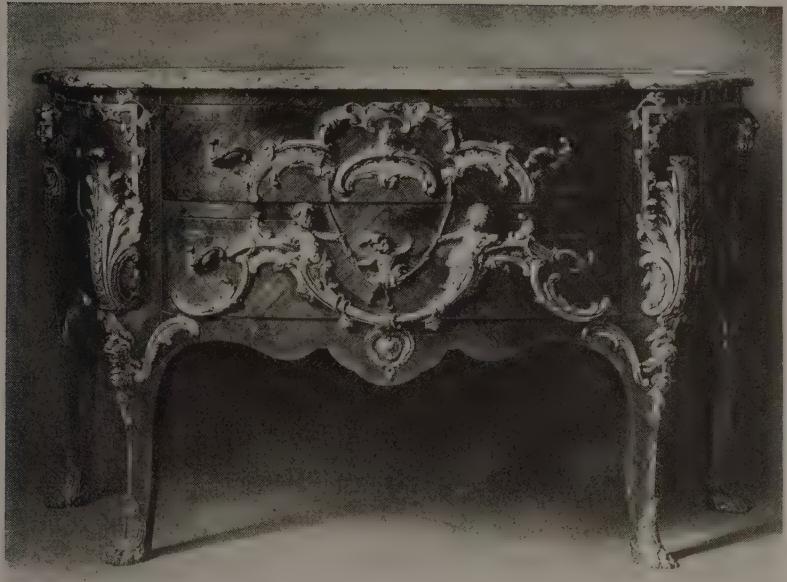
"Cartonnier." Satinwood and gilt bronze. Formerly the property of H. H. the Princess of Saxe-Altenbourd. "Chinese Palace," Oranienbaum, Russia.

Above all other names looms that of Watteau. His genius is supremely indicative of the taste of the regency at its highest and best. He is the magician of the epoch, and his magic still moves us to wonder and admiration. So pervading was his charm that it is impossible to consider any artists of these particular years without turning toward this master as the source of their inspiration. We see his painted attitudes in stone, his pencilled faces in bronze; his costumes were copied on the contemporary stage, and one is even inclined to believe that the vaporous landscapes of France, the graduated perspectives of its gardens, changed subtly once Watteau's brush had transferred them to canvas.

At this time, thanks to the financial enterprises of the celebrated Law, a great number of colossal fortunes had been made. Paris saw an activity in building which up to that time had been unknown in its history. Those who already possessed houses altered and redecorated them according to the taste of the day, and as an obvious consequence furniture had to be made in a fashion suitable to these new surroundings. It would, of course, be an exaggeration to imagine that the aspect of things changed suddenly and completely. Style is constituted not through absolute innovations, but by modifications typical of the existing order, and more particularly is this true of all French styles whose genesis is in tradition and whose evolution is natural and comprehensively progressive. From time to time an artist of real genius gives a new *accent* to the modification. Watteau did this in painting and Cressent in cabinetmaking.

Charles Cressent was, artistically speaking, the direct successor of Boulle, in the importance of his work, in its originality, and in the influence it exercised on later ebonists. Needless to say his designs were vastly different from those characteristic of the earlier master. After the Louis XIV formula, whose object was to strike the senses by its magnificence and majesty, that of the regency strove to please rather than to impress. It was, in quite a definite sense, a formula of reaction. At the same time, though expressive of another mental attitude, it was logical enough to represent a continuation of seventeenth-century forms. It was also important enough to constitute the basis of the succeeding style, that of Louis XV, the characteristics of which became, however, somewhat involved as it progressed, on account of the enormous amount of individual artistic activity resulting from the then comparatively disseminated condition of society.

The son of a sculptor and the grandson of a carpenter, Charles Cressent was born in Amiens in 1685. In 1714 he was admitted as a sculptor to the Academy of Saint-Luc in Paris. Five years later he married the widow of one Poitou, who had been ebonist to the regent, thereby taking a step which was perhaps one of the most important in his life, as, thanks to this fact, added to his already recognized talent, he placed himself where he could logically be called upon by those in authority to succeed Joseph Poitou as "ébéniste



Commode. Satinwood and gilt bronze. Collection of Baron de Schlicting, Paris.

attitré." From 1719 to 1757 he worked indefatigably. At the last date he retired from business, and in 1768, in midwinter, he died, and was buried in the cemetery of Saint-Joseph, not far from the tomb of Molière.

So much for the mere dates concerning the salient events of his life, as well as that of his death.

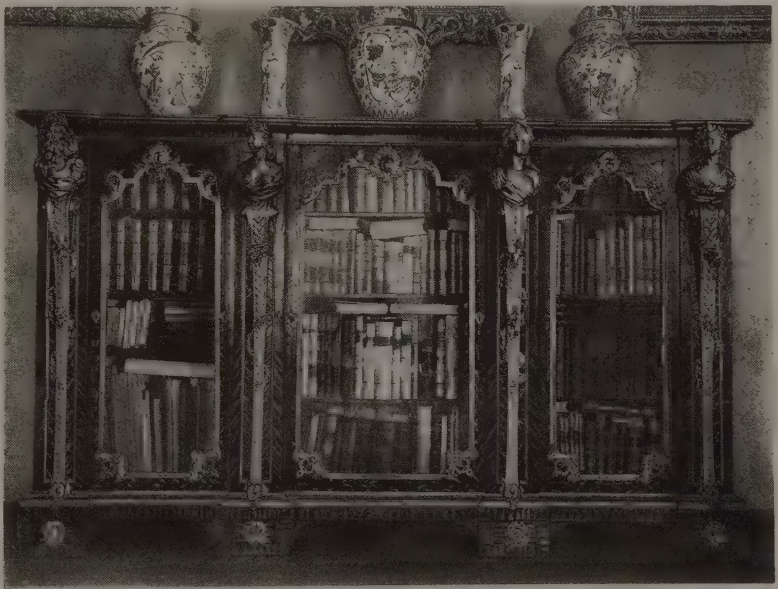
In the year 1720 the regent commissioned the architect Gilles-Marie Oppenord to design and superintend the altering and redecorating of the Palais-Royal. Of Dutch parentage, though born in Paris, Oppenord was the foremost architect of the moment, and can be considered one of the creators of what we call the "Style Régence." He had been given the official title of "Director-General of Buildings and Gardens to the Duc d'Orléans."

The work to be done in the Palais-Royal was of no small importance, and Oppenord set about to secure associates to assist him in this undertaking. Foremost among them we find the names of Robert de Cotte and of Charles Cressent, whom Oppenord had undoubtedly met when the future "ébéniste du régent" was working within the Louvre in the atelier of Girardon. That period of Cressent's career we cannot but consider as a most important one. The sculptor Girardon was a man of extremely cultivated tastes. He possessed a collection of Italian bronzes which was perhaps unequalled in Paris at that time. Living as he was amidst statues and bas-reliefs dating mainly from the Renaissance, Cressent could not fail to be influenced by such surroundings. This influence must have been visible in his own work, which at that time seems to have consisted entirely of sculpture. We learn from documents of the epoch that besides a few original statues, only one of which has survived, Cressent was engaged in restoring works by Augier, le Lorrain, and Girardon.

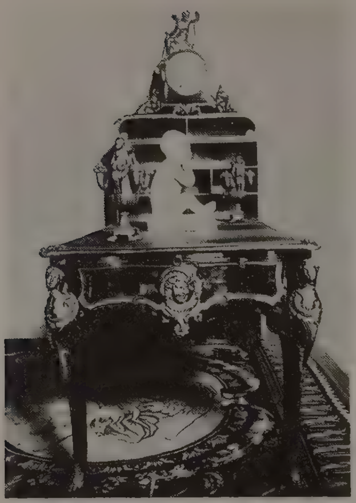
When he was called upon to furnish designs for the Palais-Royal he had, since perhaps some four or five years, given up sculpture proper in order to associate himself with the ebonist Poitou (whose widow he subsequently married), for whom he furnished many bronze ornaments destined for the decoration of furniture. In the Wallace Collection there is a commode undoubtedly made by Poitou, to which are added gilt bronzes, the work of Cressent, the whole piece being in the style of Boulle. This is probably the earliest specimen of Cressent's work. Its ensemble can hardly be considered characteristic of his style which, a few years later, found such individual, original expression in his complete pieces. The two other examples belonging to his first period are clocks, one preserved in the Musée des Arts-Décoratifs, the other still remaining in the Palace of Versailles.

Even from the first, however, his style was very distinctive. His bronzes, those meant to be applied to furniture, were particularly bold in character and were excessively realistic in manner. His representations of human forms, and more particularly of heads, used as "chutes" for the angles of tables or commodes, were full of life and expression. Though his types are incontestably borrowed from Watteau, they are very varied and never meaningless. He had a predilection for busts of young women, whose smiling features and jewelled ornaments must have seemed strangely modern to contemporary eyes, and for the more classic masks of old men, whose flowing hair and beard were used in a somewhat more conventionalized manner. On many of his pieces we see highly spirited groups of children, a favorite theme of his, combined sometimes with bacchantes or involved scrolls. Lifelike presentments of animals, of dogs and dragons, and of the gods of ancient mythology were used profusely by Cressent in his early and middle period, and again we have reminiscences of Watteau in his mouldings of personages drawn from the "Comédie Italienne."

By the middle of the eighteenth century Charles Cressent's vogue was at its height. He had, several years before, been created "ébéniste du régent," and although he worked

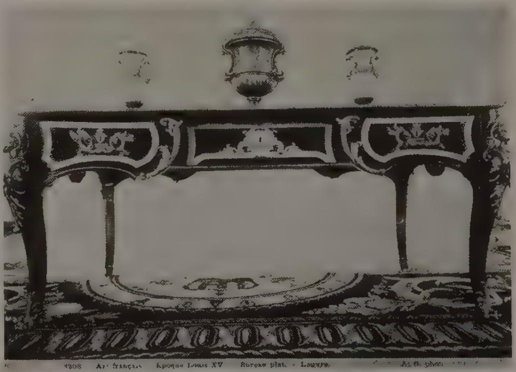


Bookcase. Satinwood and gilt bronze. Formerly in the Dournovo Collection, St. Petersburg, Russia.



Writing-table in the Louvre characteristic of Cressent's fully developed style.

throughout the greater part of the reign of Louis XV (though fortunately he never allowed his very personal and highly developed style to be influenced by later fashions), for some reason unknown to us he was not promoted to the rank of "ébéniste du roi." He supplied furniture for the court, for the "hôtels" and "châteaux" of the aristocracy as well as for palaces of foreign sovereigns, but curiously enough never for the King of France. Considering his reputation as well as his prodigious talent and capacity for work, this neglect must have been the result of some intrigue, the details of which have been lost to posterity. Every period, however, has its outstanding name. Boulle was characteristic of the century of Louis XIV.; Cressent, admirably descriptive of the brilliantly artistic years of the regency; while Oeben, who had studied under Boulle, and who rose to fame under the reign of the fifteenth Louis, stands preeminently for the style of that time.



Writing-table originally made for Versailles. Now in the Louvre.

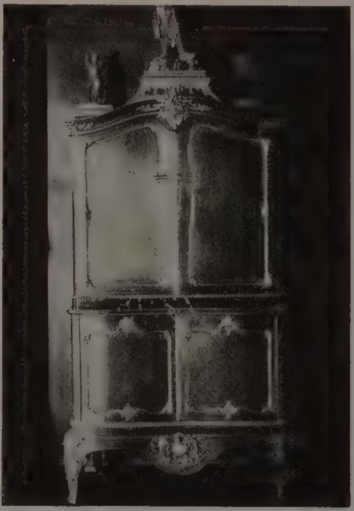
It was Cressent who first used various kinds of wood, both exotic and domestic, in cabinetmaking. Following the severe epoch of ebony and tortoise-shell, the gay society of the regency demanded furniture of a more pleasing character to decorate its salons and bedchambers. Cressent triumphed in assorting, with impeccable taste, a great variety of woods, which he worked harmoniously together with much imagination and fantasy. In his middle period he covered these surfaces, worked into geometrical patterns or into an infinite variety of decorative designs, with a profusion of gilt bronzes, enhancing thereby the color of the highly polished wood itself. Never, however, did his work become too elaborate, and even in his richest compositions Cressent did not forget the value of line. In his bronzes there is always a boldness which is reminiscent of the classic traditions of the preceding century. Unlike Meissonier, his imagination kept ever within the bounds of proportion.

Another very noticeable characteristic of his work is its appearance of completeness, of unity. This is due to the fact that besides being a sculptor, designer, and cabinetmaker, besides understanding thoroughly the arts of founding and veneering, he was as well an experienced carpenter. His apprenticeship in this line had begun when as a very young child he had worked in his grandfather's shop in Amiens. And, in spite of the then excessively strict corporative laws, Cressent managed, no doubt by the help of his high protector, to remain a carpenter, ebonist, founder, and sculptor, all in one. In this respect he is undoubtedly unique in the annals of cabinetmaking, and the natural result of his varied knowledge we see in pieces which, unlike very many others, are not the outcome of collaboration and do not therefore give the impression of resulting from a combination of tastes.

Outside of his workshop, which, in conjunction with his residence, was situated in the rue Notre-Dame-des-Victoires (and from which, unusually enough, he never moved throughout his entire Paris career), he reached a position of a certain eminence. As time went on he became known as an authority and expert on all art matters. The regent was fond of the arts. He appreciated music and painting as well as the various sciences, and it was not unnatural, therefore, that he grew interested in the opinions and personality of Charles Cressent. We have reason to believe that Philippe d'Orléans oftentimes sought the advice of his ebonist on the question of his own art purchases. Cressent himself was the possessor of an important collection of paintings, of antique bronzes and marbles, as well as of Oriental and European porcelain, to say nothing of furniture due to his own and others' invention. A catalogue, dated 1756, at the time of his retiring from business, is preserved in the Bibliothèque Nationale. In it his various belongings are enumerated. Through it we are able to identify many articles of his creation, and from it we learn that Cressent owned important paintings by Rembrandt, Dürer, Rubens, and Van Dyck, as well as canvases bearing the signatures of lesser lights, both contemporary and belonging to the preceding century.

As Cressent grew in years his style became simpler, the lines of his compositions more severe and less covered with bronze decorations. There are three pieces which illustrate perfectly the different phases occurring in his taste. The first is a large writing-table, now in the Gallery of Mirrors at Versailles. On this piece of furniture the Peace Treaty was signed on the 28th of June, 1919. In it we still find the Louis XIV tradition. Its bronzes, though of large dimensions, of bold and realistic design, do not give the dominant impression, as in his later pieces. They are primarily structural, and follow the lines of the table itself.

In a commode now in the Wallace Collection we have an example of his middle manner. The wood would seem to be a mere accessory for the bronzes which, with great exuberance



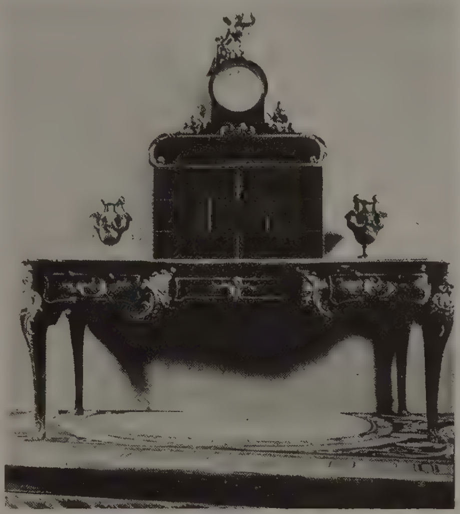
Cabinet in the Bibliothèque Nationale, in Cressent's early manner. (The Chinese figures do not belong to the piece.)

and richness, unfold their continuous design over its surface. In the centre there is a female face surrounded by leaves and arabesques, which on both sides resolve themselves into conventionalized figures of dragons. The side panels are as well covered with bronzes. The corner "chutes" descend the entire length of the legs, finishing in heavy and elaborate "sabots."

Two celebrated cabinets, which some years ago passed into the Rothschild and Castellane collections, are descriptive of his final style. In outline they are absolutely severe. The two panels are ornamented with gilt bronze, forming a design nearer the neo-classic Louis XV manner than any other of Cressent's creations. The handling is lighter and more delicate, and, correspondingly, larger surfaces of undecorated wood are visible.

As to his statues, only one example has survived. This is the bust of the Duc Louis d'Orléans, son of the regent, which is kept in the Bibliothèque Nationale.

To enumerate all his existing authentic works would require a fair-sized pamphlet. Luckily for posterity many of his clocks, tables, commodes, and cabinets have been carefully preserved and registered, a certain number of examples being owned by the state, others being distributed about in various French and English collections.



Large writing-table with "Cartonniers" surmounted by figures of Diana, now in the Louvre.

It is impossible to look at his works without realizing that Cressent was a very complete artist, full of fire and inspiration, and one who notwithstanding the taste of his time never allowed his genius to descend to the exaggerated passion for "rocaille." In all his creations there is an air of nobility and grandeur, a feeling of strength often coupled with restraint. When, as in his middle period, he ignores this latter quality, his exuberance never loses its sense of proportion; even his most excessive ornament is always harmonious, and strikes one by its continuity in design. The unrelated arabesques of the "rococo" masters find no place in his compositions.

Three years before his death, in 1765, the aged artist published his third and last catalogue, an inventory of the treasures whose dispersal was to occur so shortly afterward. He left no heirs, his wife had died several years earlier, and the principal beneficiary under the terms of his will was his housekeeper.

Nowadays one is apt to say to oneself that modernity should be encouraged, that one should have furniture and decorations made corresponding to the "cachet" of our own time. But once in the presence of these commodes and tables, these secretaries and "coiffeuses" of another age, these creations of luxury and elegance, made with a mastery which seems to be really a thing of the past, one's ardor for modernity melts away, and one is content to remain under this enchanting spell of the past. Then, too, in a time such as ours, which has lost to so incredible an extent all idea of form, it is perhaps as well to keep alive the taste for an era when society was a positive organization, and one in which, although one did as one pleased behind closed doors, a feeling for dignity and a knowledge that "noblesse oblige" still obtained among ladies and gentlemen. Modernity has come to mean a relaxing of form in every sense. What could be more expressive of this relation between furniture and manners than the following reflection, so aptly put forth by the author of the "Propos d'Alain"?

"Period furniture is primarily meant for conversation and for good manners. It regulates one's attitudes even more than does costume, and thereby the channels of one's thoughts, passions, and desires. Also, when necessary, it marks the order of precedence. As soon as this strict observance, which is so indispensable to the art of conversation, ceases to be followed, forms begin to lose their point. Society must be supported by furniture. . . . As soon as negligence, 'abandon,' vagueness, and phantasy appear, wit disappears; there is no real 'esprit' left. Man can have nothing worth saying if he is not above all aware of himself, and his confidences are not worthy of attention unless they have been properly composed."

Announcements

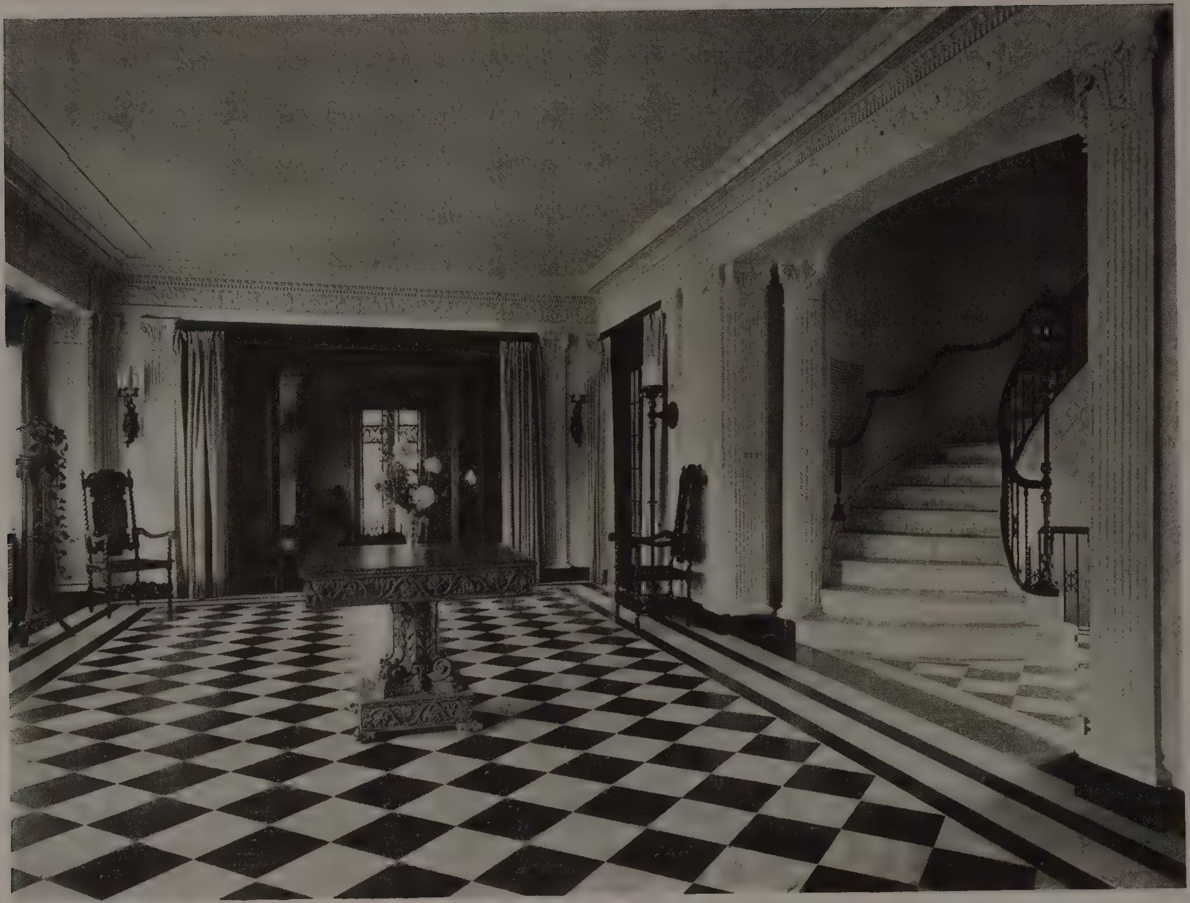
Wesley S. Bessell, architect, announces his removal from 56 West 45th Street, New York, to 58 West 49th Street, and will be pleased to receive catalogues and samples at the new address.

Giaver, Dinkelberg & Ellington, architects and engineers, Detroit, Mich., announce the removal of their offices from 602 Book Building to 1507 Stroh Building, 28 West Adams Avenue.

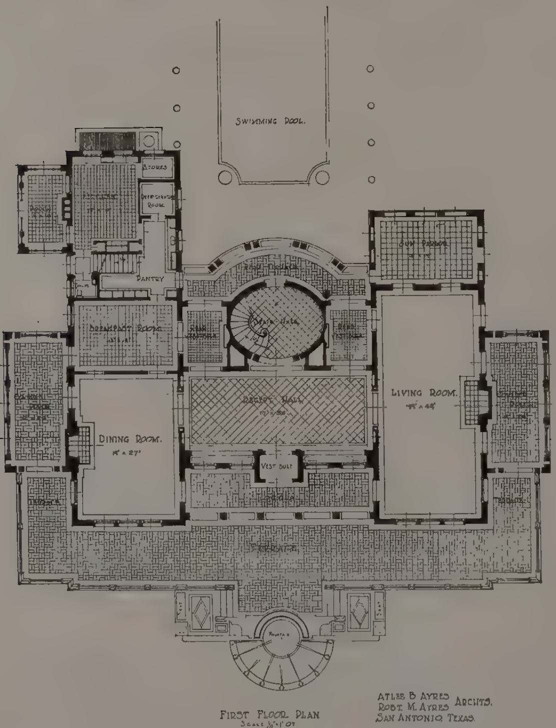
Geo. E. Trent, architect, has opened an office for the practice of architecture at 613½ Ninth Street, Huntington, West Virginia, and desires manufacturers' catalogues and samples.

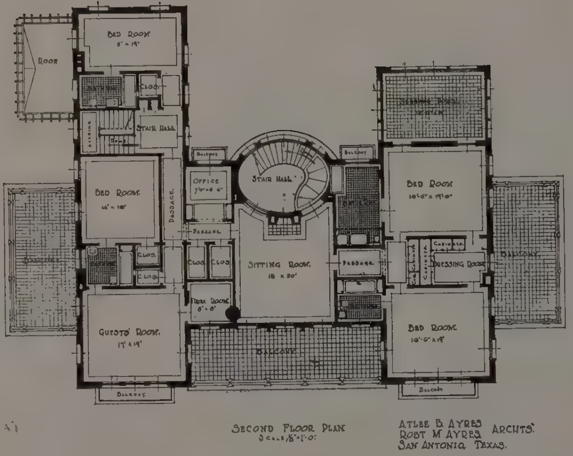
Felix Rasulo, architect, advises us that his address is now 3 Getty Square, Yonkers, New York.

To take care of greatly increased production demand, the Crittall Casement Window Company has begun the erection of a new plant at Hearn and Springfield Streets, Detroit, Mich. The new plant is being built by A. A. Albrecht, contractor, and will be ready for occupancy May 1. The plans are the Crittall Casement Window Company's own. This building is designed to be the central and larger of a group of three, the other two to be built later. The main building is 300 feet long by 100 in width, and will contain the general offices as well as the steel-casement factory.



RECEPTION HALL.





HOUSE, W. C. RIGSBY, SAN ANTONIO, TEXAS.

Atlee B. Ayres, Architect.

Profit from a Profitless Year

By William Pitkin, Jr.

Member Society of Landscape Architects

UNDOUBTEDLY income-tax returns for the year 1921 which the government will receive from architects and landscape architects will reflect an average income considerably less than for several preceding years, though there will be exceptions where firms engaged primarily on large commercial projects will show an increased earning, and occasionally even a small practitioner will have made an unusually good profit, due to some local or peculiar condition.

But on the whole the returns will indicate that the earnings of the professions have decreased enormously, and while an average taken from all the returns will probably reflect some profit, they will show in a vast number of cases that there has been an actual loss of more or less seriousness.

Among those more firmly established members of the professions who have weathered the difficult period of 1921, but have come through with a loss, or at least with only a small profit, it would be interesting to know how many count the year as entirely unprofitable in every sense of the word.

The intent of this article is to show that a year which fails to produce a dollars-and-cents profit need not necessarily be an unprofitable year, and may even be made a period productive of exceptionally valuable and satisfying returns.

Such profits will necessarily be of an indirect and even intangible nature, but if rightly appreciated and intelligently reinvested, they are sure in succeeding years to produce a direct and generous return.

The first and most important benefit gained from a period of depression when the amount of business in an office is so greatly reduced, is the amount of time which becomes available for use. As such a depression always follows a period of intense activity, the change affords a breathing spell as welcome to the professional man as the interval between rounds is to a boxer.

This newly available time affords infinite opportunities for activities which have been absolutely prohibited during periods of good business due to the pressure of daily demands essential to the execution of a large volume of work.

These opportunities include the possibility of realizing the dreams and aspirations in the mental background of every worth-while professional man for further study and travel.

Books and files hardly opened for months become accessible, and from them much valuable information is gleaned for use during future busy periods. New theories and methods previously barely touched upon are now thoroughly studied, discussed, and adopted as they are found worthy and applicable to one's needs. Materials are investigated, and one's knowledge of kinds, quantities, and varieties greatly refreshed and increased.

Travel, whether abroad or in this country, and over a wide territory or confined to one's own locality, is the most effective medium for the broadening of the trained mind. The good work of other men of earlier centuries or of to-day is the greatest source of inspiration for the professional man.

The opportunity for travel is never as available as during a period of poor business, for it is only under such conditions that one has the leisure for it. And at no other time can the professional man better afford to travel, for it involves little if any loss of income due to his absence, as would be the case were he to travel and neglect his work during a period of good business.

Another result of a year like the one just past is the opportunity for the clear and thoughtful analysis of one's organization, professional practice, and business methods.

For the first time one has a chance to get a proper perspective denied him in the rush of a busy season. It is quite amazing what unseen weaknesses, undesirable tendencies, and waste will develop from such an investigation, and it will be found that many changes may be effected which will result in a stronger personnel, increased efficiency, and greater economy.

Many offices have probably found that a reduction in the size of their force not only greatly reduces the cost without materially affecting the output, but also that it brings about a realization of the fact that certain members of the firm have been rapidly losing their personal contact with the designing and strictly professional part of their business in order to handle the executive work made necessary by the size of the organization which they have built up.

The result, while seemingly satisfactory during a period of easy business, is bound to be unsatisfactory during a period of opposite conditions, when the personal service and contact of the principals are such important factors in the securing, holding, and conducting of the comparatively few projects on which they are engaged.

It is safe to predict that when they have realized the joy and satisfaction which comes from a renewed participation in the affairs of the drafting room, and the details of the problems, many principals will not again permit themselves to become detached from the fundamental and most interesting processes of their profession, and that the comparatively smaller organizations of 1921 will persist through the years of plenty which are to follow.

The securing of new business is an essential function of any architect or landscape architect, whether it is performed in accordance with the requirements of the greatest sticklers for professional etiquette, or of those who prefer the outright methods of ordinary business.

To those of either extreme, or to the vast majority following an intermediate course, a year like the past offers untold opportunities for the building up of those connections and resources through which they secure their business.

Desirable publicity of all kinds can be worked up at leisure, including the photographing of completed projects for publication; the writing of articles for technical and layman magazines; the preparation of drawings, models, and photographs for exhibitions; and the gathering of data and making of lantern-slides for lecture purposes. All of these operations are, of necessity, generally neglected by the average office in busy times.

Incidentally, such activity not only reflects to the credit of the individual, but also reacts to the benefit of the entire profession, and does add immensely to the layman's understanding and appreciation of the work of that profession.

With some concerns, and doubtless with many, most of the new business secured in 1921 can be traced to two sources, which are, in order of importance, satisfied clients and previous publicity.

Never has the old adage, "A true friend is a friend in adversity," been proven more conclusively to such concerns than during the past year, and nothing has been more clearly proven than the value of making such true friends out of clients. Many offices have been occupied entirely on work secured through satisfied clients, to whom they have, in past years, rendered conscientious, capable, and efficient service.

It is a lesson which should be thoughtfully considered and thoroughly learned, and occasionally in future years should be brought out from the mind's storehouse, carefully cleaned of the dust accumulated through other busy periods, and set up for renewed appreciation.

Previous publicity—the second source of 1921 business—may have been of many different kinds, but in so far as it fixed in the prospect's mind the consciousness that a certain firm was responsible for a high quality of work in a certain line, it was a most successful instrument in the procuring of that new work. The prestige gained through such publicity (which may be limited to the actual work itself) was responsible undoubtedly for a great part of the business obtained by many firms last year.

In another way not quite so pleasant to consider 1921 has also proven profitable. It has taught the value of a good agreement or contract between the professional man and his client, as well as between client and contractor. Many operations have been discontinued or abandoned, with subsequent misunderstanding due to the varied interpretations of contracts. And many cases have resulted in legal action, or at least been subjected to arbitration. Very frequently the professional man has come out a loser, and, even though there has been no financial loss, there has been a loss of good-will or prestige, which is equally disastrous.

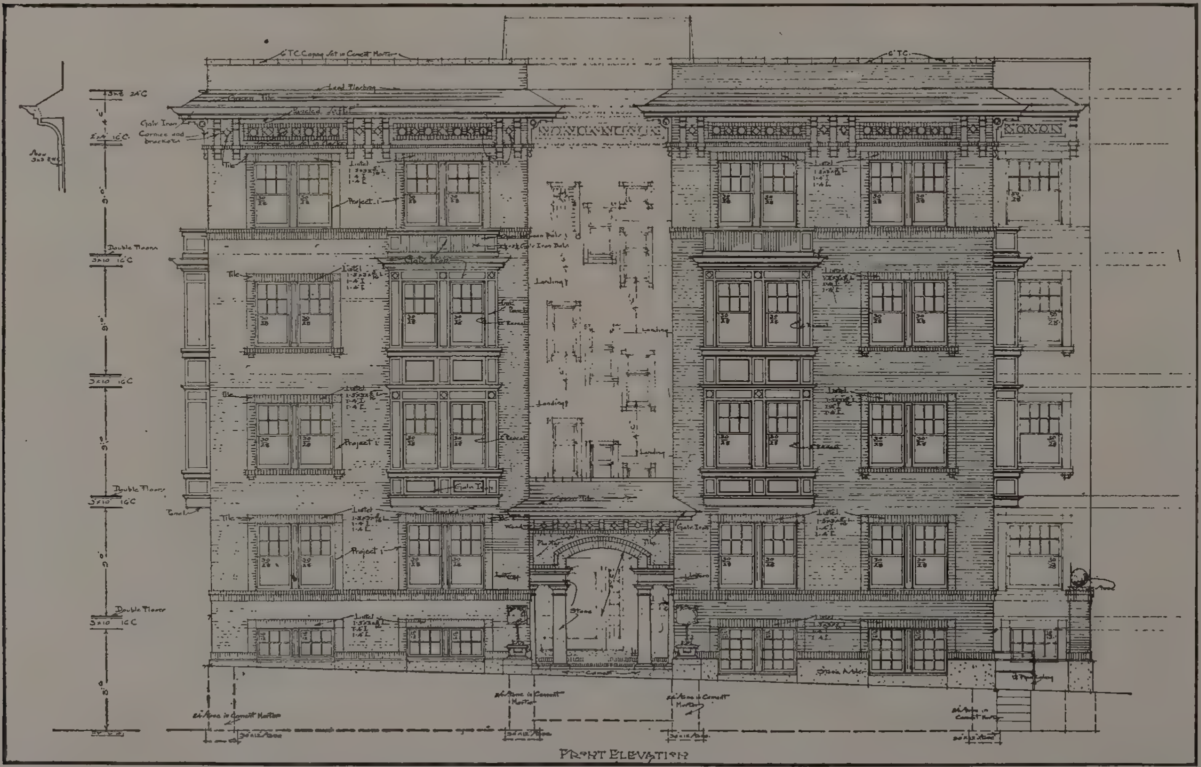
A clear and concise contract, capable of standing legal action, has in the majority of cases produced utmost satisfaction to all parties, with no misunderstanding and no interruption of cordial relations.

It is well, therefore, in times of comparatively quiet business, to check over all agreements or contracts and to rectify wording which may be ambiguous or capable of misinterpretation. It might also be added that methods of keeping accounts, auditing bills, issuing certificates, and handling other business matters can be checked up to advantage at such a time with a certainty that some improvements can be made which will prevent future difficulties, effect a saving, and increase efficiency.

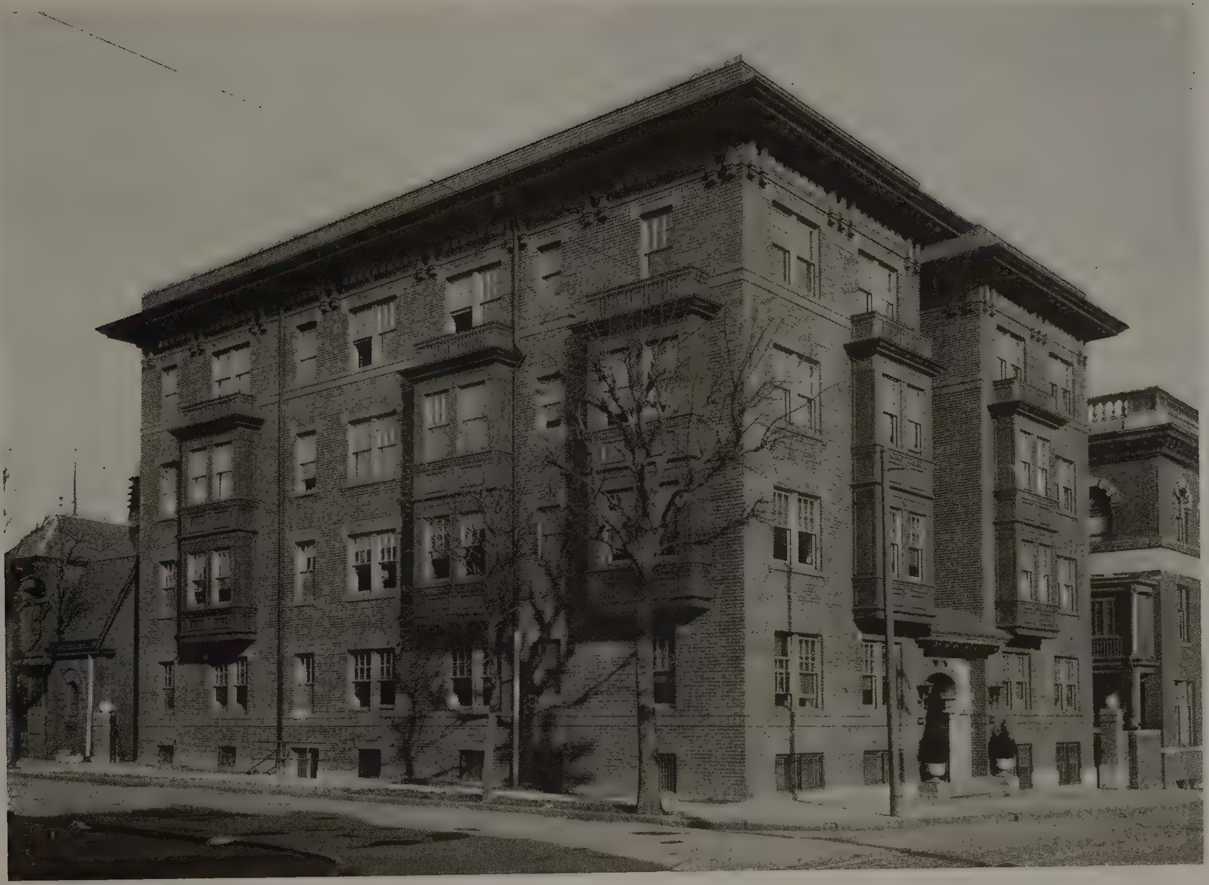
There are doubtless many other ways in which different individuals have utilized the unusual amount of time on their hands during the recent dull period. Many have probably considered their unexpected leisure as undesirable and have invested it unwisely or wasted it. Others have accepted it as inevitable and employed it in developing certain outdoor sports, with the compensation of minds and bodies refreshed and strengthened. Still others have been grateful for it and grasped at the opportunity to follow special hobbies and to work up projects long postponed for want of sufficient time.

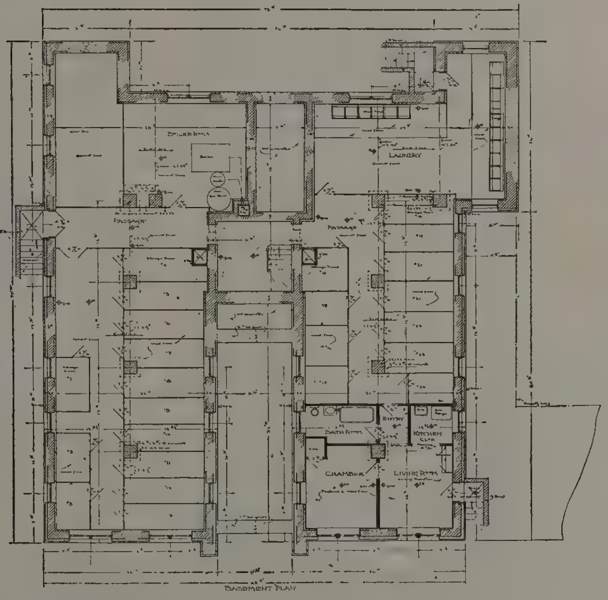
But to those who have realized that such leisure could be applied to the broadening of their professional knowledge and to the improvement of business methods, and who have conscientiously, persistently, and intelligently applied themselves to the multiplicity of tasks at hand, a year like the past will be looked back upon with gratitude for the opportunities it afforded, with pleasure in the knowledge acquired, and with satisfaction in the work accomplished.

To such it is certain that the year 1921, though unprofitable in the sense of an actual money return, will have been productive of other forms of profit which will be possible of a tenfold increase in terms of money when business conditions have returned again to a state of normalcy.

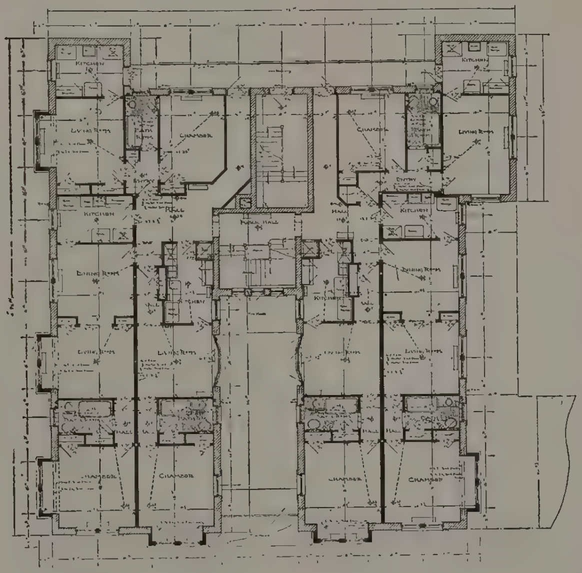


Apartment-house for I. Newton Smith, Sydenham and Master Sts., Philadelphia. E. Allen Wilson, Architect.





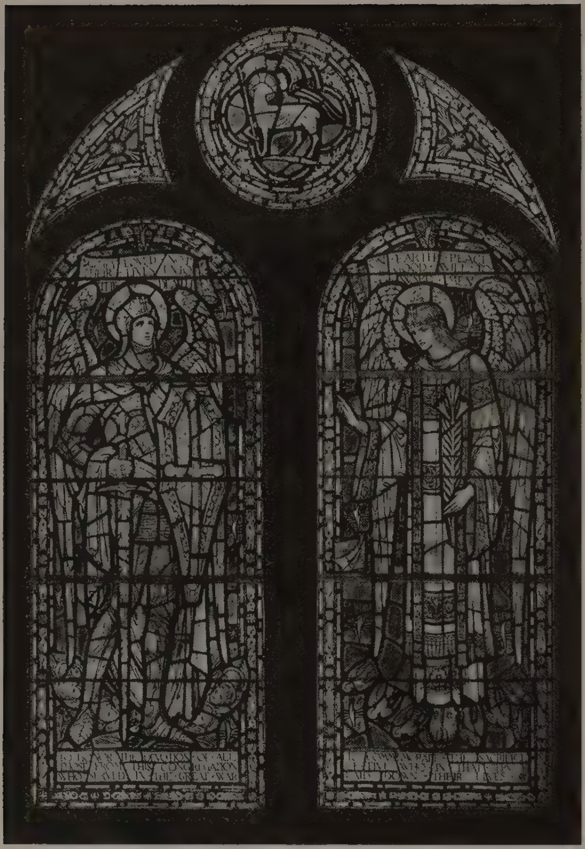
BASEMENT PLAN.



TYPICAL FLOOR PLAN.

E. Allen Wilson, Architect.

APARTMENT-HOUSE FOR I. NEWTON SMITH, SYDENHAM AND MASTER STREETS, PHILADELPHIA, PA.



Designed and executed by C. S. Connick.

The Soldiers Memorial Window in Hyde Park Baptist Church of Chicago

THIS window is an interesting study in stained glass, expressed in terms of honest craftsmanship which are related to the great masterpieces of the Middle Ages. It is frankly decorative, rather than pictorial, and shows an exuberant pleasure in the use of lead lines and bar lines, those rugged fundamentals of the craft that are so often timidly disguised.

The color scheme suggests a quiet jewelled splendor, and ranges from silvery and pearly whites to cool blues and flaming rubies and golds.

The symbolism of color, as it has come to us from the Middle Ages, has been observed throughout the composition. White, the color of peace and innocence; blue, for loyalty and eternity; red, for Divine Passion, courage, and self-sacrifice; green, for youth and hope; and gold, for achievement, are beautifully evident.

In design, the highest expression symbolically is to be found in the triumphant Lamb of God in the small circular piece. Flames and stars, the seraphim at the feet of St. Michael, and the doves at the feet of St. Gabriel are equally significant of the Heavenly Powers and the nearness to the Heavenly Kingdom and the Throne of God.

The inscriptions are as follows. For St. Michael "They Loved not their lives unto the death," and for St. Gabriel, "On Earth, Peace, Good-Will Toward Men." And at the base of the window: "To honor the devotion of all those from this congregation who served in the great war." "To commemorate the sacrifice of five who in that service laid down their lives."

Announcements

Leon M. Gurda and Francis S. Gurda have formed a partnership for the practice of architecture under the firm name of Gurda & Gurda, Architects, with offices at 470 Mitchell Street, Milwaukee, Wis. The firm name was formerly Leon M. Gurda, Architect. Additional catalogues and samples are desired.

When you plan or you build—remember the cardinal points of good stucco design: (1) Stucco should not be run down to the ground without a solid impervious base course. (2) The proper overhang and drip should be provided for all window-sills and other horizontal woodwork, and some stop should be provided at the ends to avoid the concentration of water over end of the sill. (3) The design should be chosen to permit of a generous overhang of eaves and cornices. (4) There should be no horizontal surfaces of stucco on which water can collect. Liberal and discriminating use of flashings should be made wherever water might get behind stucco—such as at roof and wall intersections, under joints of masonry trim, etc. (5) Chimneys should be covered with impervious caps to avoid unprotected stucco at top of chimney. Chimneys should be wrapped with metal lath before stuccoing.

Sheathing should be eliminated and metal lath back-plastered according to the findings of the U. S. Bureau of Standards.

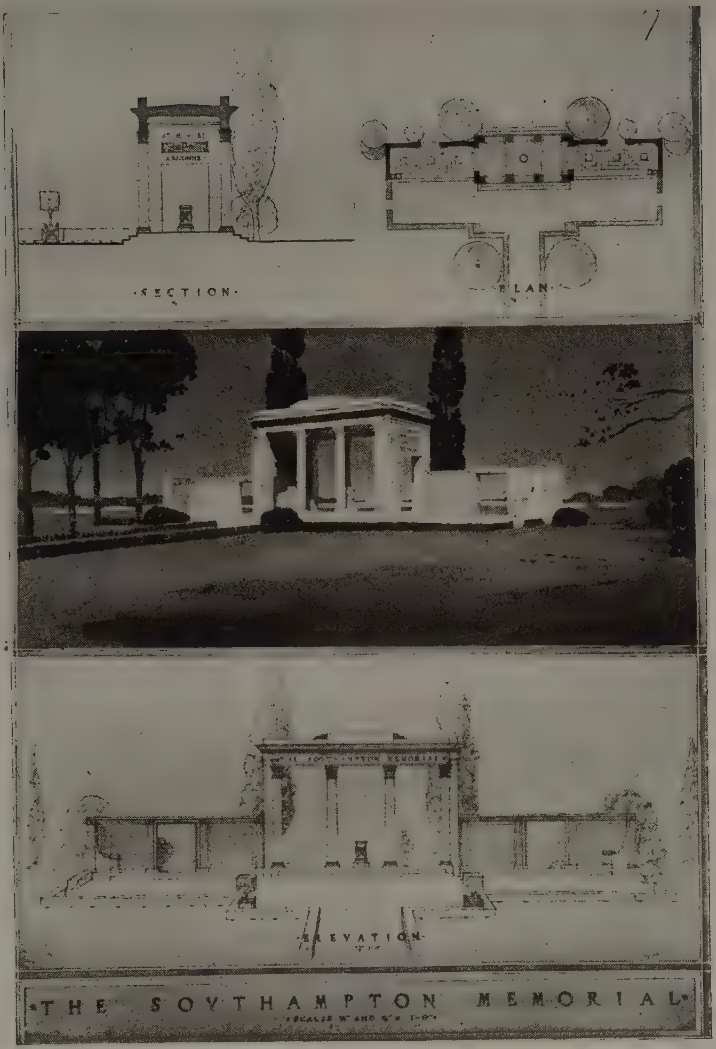
The architect of the Bible House building, 5 East 48th Street, published in our March number, is Wilfred E. Anthony, not H. C. Anthony as it appeared through an error. It is one of the most interesting and suitable small business buildings in New York.

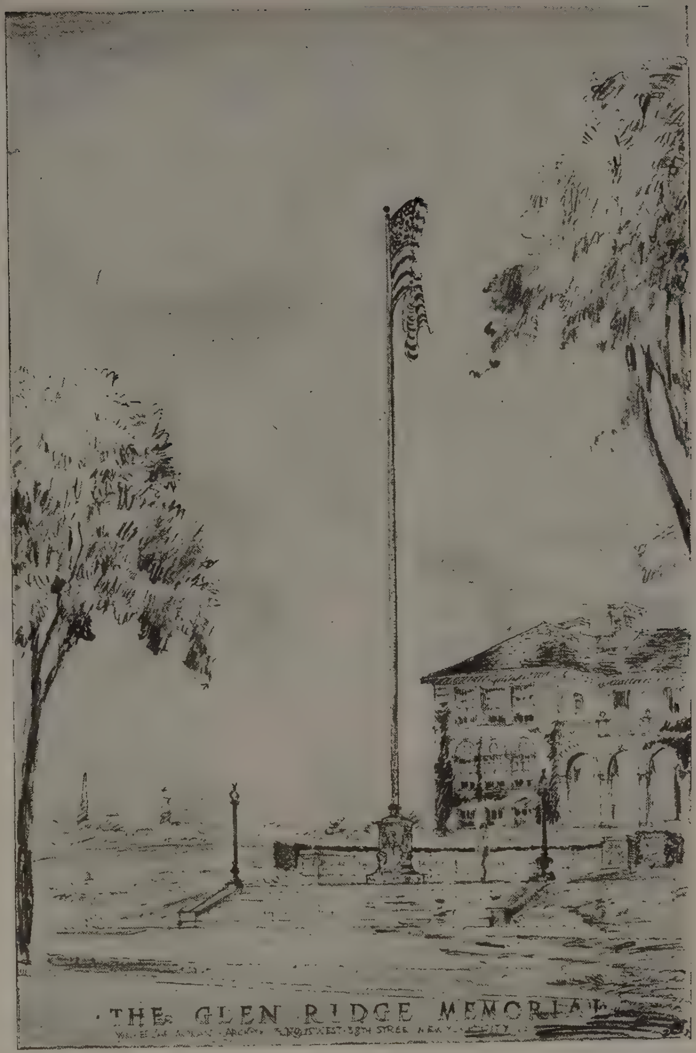
Messrs. Nichols, Sheppard & Colthurst, architects and engineers, 32 Sandwich Street W., Windsor, Ontario, wish to announce that after March 1 they will be located at their new offices, Dowler Building, Sandwich Street W., Windsor, Ontario.

The firm of Warren & Knight, architects, wishes to announce that after January 1, 1922, Mr. John Eayres Davis, formerly practising architect of Detroit, Michigan, will become a member of the firm, the new firm name to be Warren, Knight & Davis, architects, 1607 Empire Building, Birmingham, Ala. They are members American Institute of Architects.

Frank Irving Cooper Corporation, architects and engineers, have moved to 172 Tremont Street, Boston, Mass. Formerly at 33 Cornhill.

J. Frederick Kelly, architect, announces the removal of his offices on March 1, 1922, to the fifth floor, Simons Building, 39 Center Street, New Haven, Conn.





Two War Memorials

William Edgar Moran, Architect.

THE Southampton Soldiers Memorial is to be the centre of the parked treatment of a plot of ground approximately two acres in extent running from the main road of the town to a lake, and in making the design, two considerations appeared to be of first importance: First, that the names of those to be commemorated should be clearly and legibly described; and, second, that the design should be an intrinsic part of the landscape treatment of the site, and should not interfere with, but should tend to add to, or frame, this natural beauty.

The memorial consists of a platform raised above the ground, the centre portion of three, and the side two steps above the grade. On the centre platform it is proposed to erect an open colonnade or temple, roofed for shelter. On the walls of this temple would be inscribed the great victories of the war, and in the centre would be a suitably inscribed commemorative altar of victory.

To the left and right of the centre, walls are to be erected, whereon the names of those who served are to be inscribed. It will be noted that the centre portion of the temple is open, and openings have been left in the side-walls, so that views of the lake and surrounding hills may be framed.

The landscape treatment will be of the simplest type, low shrubs, with perhaps an enclosing planting of elms, to frame the monument.

The Soldiers Memorial at Glen Ridge, N. J., is designed to be placed on the axis of the high school on a gently sloping lawn. From the sidewalk a broad flight of steps leads to a cobbled platform; on this will be erected a simply detailed low stone wall, semicircular in plan, on which will be carved the names of those who died in the service. At the centre of this semicircle will be erected a flagpole with a stone pedestal carved with appropriate symbols, the shield of United States and of New Jersey; the design is to be flanked by two bronze candelabra.

Concrete Construction

By DeWitt Clinton Pond, M.A.

TWELFTH ARTICLE

IN the last two articles most of the rules dealing with flat-slab construction which are found in the amendment to the Building Code of New York were discussed. The only rules which remain as subjects for investigation in these articles are those dealing with bending-in columns and with the requirements for beams and girders which would be used as special supports under walls and at openings.

There will be bending developed in interior columns where there are "unequally loaded panels, eccentric loading, or uneven spacing of columns." Paragraph *D* in Rule 12 deals with this condition. The formula given for the bending moment "resulting from unequally loaded panels shall be considered as $\frac{1}{40}W_1L$, and shall be resisted by the columns immediately above and below the floor-line under consideration in direct proportion to the values of their ratios I/h."

576.

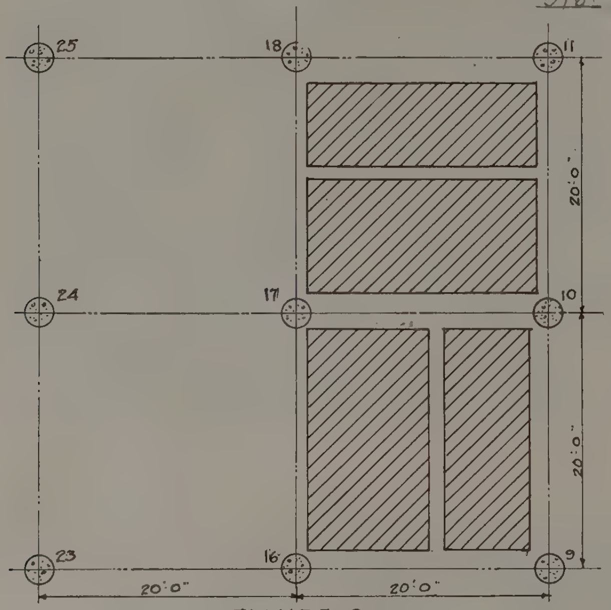


FIGURE 9

Conditions which might produce bending moments in interior columns are illustrated in Figs. IX and X. In Fig. IX the panels between columns 16, 17, 18, 23, 24, and 25 carry the typical live load for the floor of 175 pounds per square foot. The two panels between columns 9, 10, 11, 16, 17, and 18, however, have especially heavy machinery upon them, which brings the live load per panel up to 250 pounds per square foot. It will be noticed that in the formula given above for the determination of the bending moment in the column due to this condition the symbol W_1 is used, which designates the total *live* load on a panel. By substituting for W_1 the value obtained from the given unit live load on a panel measuring 20 feet square, it is possible to obtain the following result:

$$M = \frac{1}{40} \times 100{,}000 \times 20 = 50{,}000 \text{ foot-pounds.}$$

According to the code, this moment is distributed between the columns directly above and below the floor carrying this special load in a manner similar to that illustrated in Fig. XI. The proportion governing this distribution is given above. Assuming that the column below the floor under consideration measures 36 inches in diameter, and measures 12 feet high from top of slab to base of capital, and that the column directly above measures 34 inches in diameter and 13 feet high, then I/h for the lower column would be 510.14 and for the upper one would be 419.6. As the bending moment is resisted by the two sections of columns in direct proportion to these values, approximately five-ninths of it is taken by the lower column and four-ninths by the upper. In accordance with this, 27,777 foot-pounds must be resisted by the lower column and 22,222 foot-pounds by the one above it.

In order to reduce such a moment into terms of direct stress, it is necessary to assume a column section larger than required to carry the direct stress due to floor loads, and to check this to see if it is large enough to carry both this load and the added load due to the tendency toward bending caused by the unequally loaded panels. The formula to use for this purpose is familiar flexure formula $M = f \times I/c$, in which f is the fibre stress in the extreme fibre, I the moment of inertia of the section, and c the distance from the neutral axis to the most extreme fibre.

The moment of inertia for the area enclosed within a 36-inch spiral is 82,300 and I/c equals 4,570. M is known. It is necessary to find f. The formula may be arranged as follows:

$$f = M \div I/c.$$

$$f = 27{,}777 \times 12 \div 4{,}570 = 73 \text{ pounds per square inch.}$$

The eccentric loading will increase the unit stress by only 73 pounds and the stress upon the 36-inch column will

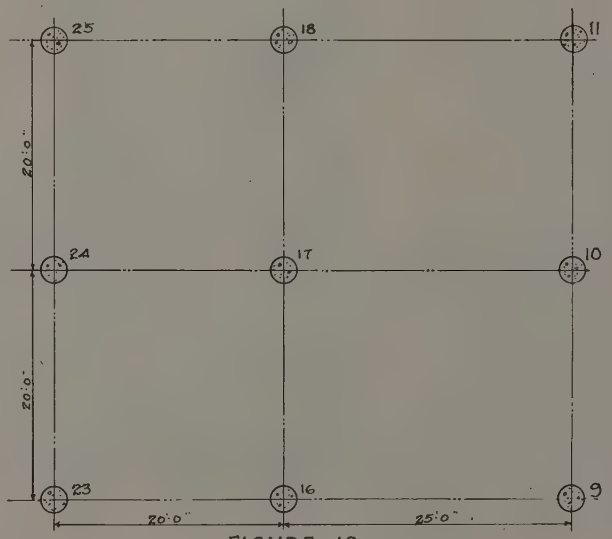


FIGURE 10

be increased by 75,000 pounds. When the allowable load upon a column having a 36-inch spiral and measuring outside 3 feet 4 inches is considered, it will be seen that the added load due to eccentricity is worth considering, as it will add 1 inch to the diameter. It must be remembered that this column is unusually large and that there are cases where eccentric loads will require a considerable increase in the diameter of a column.

Columns which are most apt to be eccentrically loaded are wall columns, and a paragraph is devoted to them in the code. This is paragraph *E*, Rule 12, and is given below:

"Wall columns shall be designed to resist bending in the same manner as interior columns, except that W shall be substituted for W_1 in the formula for the moment. The moment so computed may be reduced by the counter-moment of the weight of structure which projects beyond the centre line of the wall columns."

There should be no difficulty in understanding this requirement. If there is a brick wall enclosing the building, the weight of this wall multiplied by its distance from the centre of the column may be taken as a counter-moment to the floor load. As has been shown in previous articles, the wall loads are usually separated in the design sheets so that the total moment may be determined with comparative ease. However, it will be found that this wall moment will do little to counteract the moment due to the floor load. Engineers always check the bending in exterior columns, but it is often found that the sections are made so large in the upper stories of a building for architectural reasons that the eccentric loading does not overstress the concrete, and that in the lower stories the sections are so large, due to the loading, that the same effect is produced.

As an example of this a rectangular exterior column, measuring 1 foot 8 inches by 3 feet 10 inches, may be taken. The total load upon this column was 136,000 pounds, but the area of concrete and steel was capable of carrying 489,000 pounds. The total live and dead load on the panel supported, in part, by this column was 90,000 pounds. $\frac{1}{40}WL$ would become $\frac{1}{40} \times 90{,}000 \times 20 \times 12$. This would equal 540,000 inch-pounds. The stress in the extreme fibre will be increased by 188 pounds per square inch in the columns above and below. If this unit stress were imposed over the entire area of the column, the load would be increased by 80,900 pounds. Add this load to the total given above, and the sum would not equal the allowable load on the section.

The point at which an exterior column of this type should be checked carefully for bending due to eccentricity is at the floor where the total load upon the column becomes almost as large as the allowable load upon the section.

Paragraph *F* of Rule 12 deals with roof columns. It states that "roof columns shall be designed to resist the total moment resulting from unequally loaded panels. . . ." The difference between this consideration and the ones given above is that in the first cases the bending could be resisted by the two sections immediately above and below the panel under consideration, but in the case of the column section under the roof, all the tendency toward bending must be taken up by that section.

There are two other rules to be investigated. The first of these is Rule 13, which states: "In the design and construction of reinforced-concrete flat slabs, additional slab thickness, girders, or beams shall be provided to carry any walls or concentrated loads in addition to the specific uniform live and dead loads. Such girders or beams shall be assumed to carry twenty (20) per cent of the total live and dead panel load in addition to the wall load. Beams shall also be provided in case openings in the floor reduce the working strength of the slab below the prescribed carrying capacity."

This rule requires but little comment. As often happens, in any form of construction, openings must be cut through floors for elevator-shafts and stairways, and where this is done in flat-slab construction, beams and girders must be provided. The beams must not only carry such walls as are used to enclose openings but one-fifth of the panel load as well.

The last rule—14—simply calls for the filing with the superintendent of buildings such calculations and analyses as are used for conditions not outlined in the previous rules. Where structures have a width of less than three rows of slabs, or where exterior drops, capitals, or columns are omitted, or where special or irregular panels are used, such action must be taken.

The rules are not difficult to understand or to apply, and form a very satisfactory basis for designing flat-slab construction.

There is some question as to the saving effected by designing either two-way or three-way reinforcing. In view of this it might be well to investigate the design of a rectangular panel for two-way and four-way systems and compare the results.

The panel which will be selected will measure 21 feet 9½ inches by 19 feet 9 inches. The live load upon it will be taken as 200 pounds. The average span will be 20 feet 9¼ inches, and the total live and dead loads will be 316 pounds, as shown below:

Live load....................	200 pounds.
2-inch fill....................	10 "
1-inch finish.................	10 "
8-inch slab...................	96 "
	316 "

The system which will be investigated first will be a four-way system, and the first step will be to determine the thickness of the slab, or t. As there will be drop panels in this design, the formula which will be used will be $t = 0.02L\sqrt{W} \times 1$.

$$t = .02 \times 20.77 \times \sqrt{316} + 1 = 8.4 \text{ inches.}$$

The slab will be considered 8½ inches thick. It is now necessary to find the *effective* depth, or d. In a four-way system there is one layer of steel at the outer section and two layers at the inner section, so d will be different in each case. Allowing 1 inch of concrete under the steel, and assuming that ½-inch rods or bars will be used, the distance from the bottom of the slab to the centre of the steel in the outer section will be 1¼ inches, and in the inner section it will be 1½ inches. d for the outer section will equal $8.5 - 1.25 = 7.25$, and for the inner section it will equal $8.5 - 1.50 = 7.0$ inches. The depth at the column-head section will be determined later.

The next item to be investigated will be the diameter of the column capital. In accordance with Rule 6, this must be $0.225L$, or, in the present case, $.225 \times 20.77 = 4.67 =$ 4 feet 8 inches.

M at the column-head section will equal $\frac{1}{32}WL$. In order to substitute the proper values in the equation, it will be necessary to determine the value of W, the total dead and live load on the panel. If the slab is made 8½ inches thick, the unit dead and live load will be 322 pounds per square foot, and the total load for the slab itself will be

$21.8 \times 19.75 \times 322 = 138{,}600$ pounds. The weight of the drop must next be determined, and it will be necessary to assume its size. As the width cannot be less than one-third of the panel length, this dimension will be taken as 7 feet, and the depth will be assumed to be 4 inches. The weight of the drop will be $7 \times 7 \times \frac{1}{3} \times 144 = 2.350$ pounds. The total will be 141,000 pounds.

There will be two moments at the column heads, one for the section perpendicular to the long dimension, and one for the section perpendicular to the short dimension. The calculations are given below:

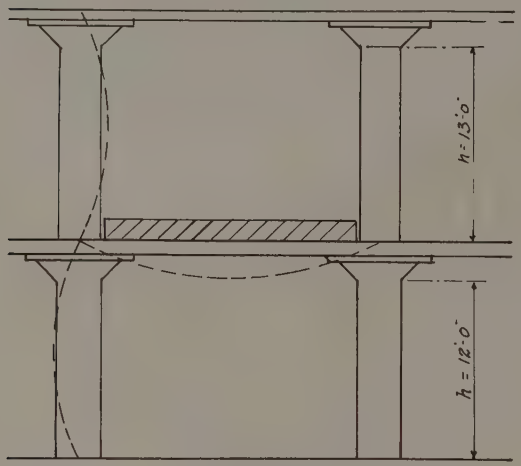


FIGURE 11

$$M = \tfrac{1}{32} \times 141{,}000 \times 21.8 = 96{,}050 \times 12 = 1{,}162{,}600 \text{ inch-pounds.}$$

$$M = \tfrac{1}{32} \times 141{,}000 \times 19.75 = 86{,}930 \times 12 = 1{,}063{,}100 \text{ inch-pounds.}$$

The next step is the determination of d for the section above the column head. The thickness of the drop depends upon this calculation.

The constant used in other calculations for the determination of d has been 1,279.5. This was determined on the basis that the allowable stress in the extreme fibre was 650 pounds. In the tenth article of this series attention was called to the fact that the allowable stress in concrete in compression at the column-head section is 750 pounds, and in this case the constant becomes 1,474. The concrete in the drop is considered as resisting the compression stresses brought to the column-head section by the bands, and as the drop has been assumed to be 7 feet wide, the calculation for determining the depth at this section is as follows:

$$\frac{1{,}162{,}600}{7 \times 1{,}475} = 112 = d^2.$$

$$d = 10.6.$$
$$t = 10.6 + 2 = 12.6.$$

The total depth at the drop will be taken as $12\frac{3}{4}$ inches, and as the thickness of the slab is $8\frac{1}{2}$ inches, the drop will be $4\frac{1}{4}$ inches thick and will measure 7 feet by 7 feet.

The next calculations will be for the determination of the areas of steel in the different sections, and if the formulas given in the last article are noted and the distance from the bottom of the drop to the centre of the steel in the column-head section is taken as $11\frac{1}{2}$ inches, these problems should be easily understood.

The moments at the column-head section are 1,162,600 and 1,063,100 inch-pounds. The areas of steel in the two bands are

$$A_{s1} = \frac{1{,}162{,}600 \times 8}{7 \times 16{,}000 \times 11.5} = 7.22 \text{ square inches.}$$

$$A_{s2} = \frac{1{,}063{,}100 \times 8}{7 \times 16{,}000 \times 11.5} = 6.60 \text{ square inches.}$$

The moments in the two mid-sections are found by the formula $M = \frac{1}{133}WL$. The depth to the steel has already been found.

$$M = \tfrac{1}{133} \times 141{,}000 \times 19.75 \times 12 = 251{,}200 \text{ inch-pounds.}$$
$$M = \tfrac{1}{133} \times 141{,}000 \times 21.8 \times 12 = 278{,}100 \text{ `` ``}$$

$$A_{s1} = \frac{251{,}200 \times 8}{7 \times 16{,}000 \times 7.25} = 2.47 \text{ square inches.}$$

$$A_{s2} = \frac{278{,}100 \times 8}{7 \times 16{,}000 \times 7.25} = 2.74 \text{ square inches.}$$

The positive moments in the outer sections are given by the formula $M = \frac{1}{100}WL$.

$$M = \tfrac{1}{100} \times 141{,}000 \times 19.75 \times 12 = 334{,}170.$$
$$M = \tfrac{1}{100} \times 141{,}000 \times 21.8 \times 12 = 368{,}860.$$

$$A_{s1} = \frac{334{,}170 \times 8}{7 \times 16{,}000 \times 7.25} = 3.29 \text{ square inches.}$$

$$A_{s2} = \frac{368{,}860 \times 8}{7 \times 16{,}000 \times 7.25} = 3.63 \text{ square inches.}$$

The moment at the inner section is determined by the same formula, but as the steel cuts the section at an angle of 45 degrees, and as L becomes the *average* span, the calculations are different.

$$M = \tfrac{1}{100} \times 141{,}000 \times 20.77 \times 12 = 351{,}430 \text{ inch-pounds.}$$

$$A_s = \frac{351{,}430 \times 8}{7 \times 16{,}000 \times 7 \times 1.4} = 2.56 \text{ square inches.}$$

A glance back at the calculations for the column-head section will show that the two areas of steel were 6.60 square inches and 7.22 square inches. These areas are made up of three bands of steel in each case. One band will be perpendicular to the section, and two will be at an angle of approximately 45 degrees. The band which crosses parallel to the section will not have any reinforcing value. Only seven-tenths of the steel which crosses the section diagonally can be considered as providing reinforcing.

The direct band in one case will have an area of steel equal to 3.29 square inches. The two diagonal bands will have an *effective* area of $2.56 \times 1.4 = 3.58$ square inches. The area resisting negative bending in one direction will be $3.29 + 3.58 = 6.87$ square inches. As there are only 6.60 square inches required, this area will be ample. The negative moment in the other direction will be resisted by an area of $3.63 + 3.58 = 7.21$ square inches, which is extremely close to the required amount.

The design of the two-way system will be taken up in the next article.

ARCHITECTURE

THE PROFESSIONAL ARCHITECTURAL MONTHLY

Vol. XLV. No. 5

CONTENTS

MAY, 1922

TEXT PAGES

Architecture as a Human Document—Ancient and Mediæval Styles. (Illustrated)	*By Albert C. Phelps, A. I. A.*	Pages 141–146
The New Orleans Raised House Type. (Illustrated)	*By Morgan D. E. Hite*	Pages 147–150
Attractive Brick House of English Style	*By Charles Alma Byers*	Page 150
Editorial and Other Comment: "Small Houses and Their Cost," "Encouragement," " 'The Bill-Board Blight' "		Pages 151, 152
Construction of the Small House. (Illustrated)	*By H. Vandervoort Walsh*	Pages 154–157
The Disposal of Sewage from the Isolated Country Estate	*By William C. Tucker*	Pages 161, 164, 165
Book Reviews		Page 166
Concrete Construction. (Illustrated)	*By DeWitt Clinton Pond*	Pages 168–170
A Joint-Ownership Apartment-House in Baltimore, Md.	*By Roy G. Pratt, Architect*	Page 170
Announcements		Page 172, 174
Simple Facts About Paint and Varnish	*By David B. Emerson*	Pages 173, 174

PLATES AND ILLUSTRATIONS

Temple of Isis, Entrance Pylons, Philæ		Frontispiece
House, John L. Cahill, New Orleans, La.		Page 147
House, Mrs. W. H. Dielmann, New Orleans, La.		Page 148
House, Mrs. Richmond Martinez, New Orleans, La.	*Morgan D. E. Hite, Architect*	Page 149
House, Paul Meyer, New Orleans, La.	*Nathan Kohlman, Architect*	Page 149
House, Hollywood, Calif.	*Meyer & Holler, Architects*	Plate LXV
House, Dr. Edward Fisher, Englewood, N. J.	*Aymar Embury, II, Architect*	Plates LXVI, LXVII
House, John McMullin, Overbrook, Pa.	*McIlvain & Roberts, Architects*	Plates LXVIII, LXIX
House at Cleveland, Ohio	*Dwight James Baum, Architect*	Plates LXX, LXXI
House, Dr. Joseph C. Palmer, Syracuse, N. Y.	*H. D. Phoenix, Architect*	Plate LXXII
House, Marguerite H. Monaghan, Overbrook, Pa.	*Paul Monaghan, Architect*	Plates LXXIII, LXXIV
Measured Details: Colonial Architecture of the Carolinas, Doorway, Date, 1772, 104 Tradd Street, Charleston, S. C.	*Measured and Drawn by J. A. Altschuler*	Plate LXXV
House, H. Hyatt, Bryn Athyn, Pa.	*Walker & Carswell, Architects*	Plates LXXVI, LXXVII
House, Mrs. Ann E. Craighill, Guilford, Baltimore, Md.	*Roy G. Pratt, Architect*	Plate LXXVIII
House, W. H. Walker, Tenafly, N. J.	*R. C. Hunter & Bro., Architects*	Plates LXXIX, LXXX
House at Larchmont, N. Y.	*Adolph Witschard, Architect*	Page 153
House, Dion W. Kennedy, Larchmont Gardens, N. Y.	*C. C. Wendehack, Architect*	Page 155
Houses No. 2 and No. 3, Garner Print Works, Haverstraw, N. Y.	*Leigh French, Jr., and Butler and Corse, Architects*	Pages 158, 159
Studies in Spain	*By Francis Howard*	Page 160
Garden Pool and Pond		Pages 162, 163
House, J. L. Schnier, St. Paul, Minn.	*Damon, O'Meara & Hills, Architects*	Page 165
House, Mrs. Eva H. Brewster, Syracuse, N. Y.	*Webster C. Moulton, Architect*	Page 167
A Joint-Ownership Apartment-House, Baltimore, Md.	*Roy G. Pratt, Architect*	Page 171

Architecture, edited in the interest of the profession, is published the fifteenth of every month by Charles Scribner's Sons (Charles Scribner, President), Fifth Avenue at 48th Street, New York.

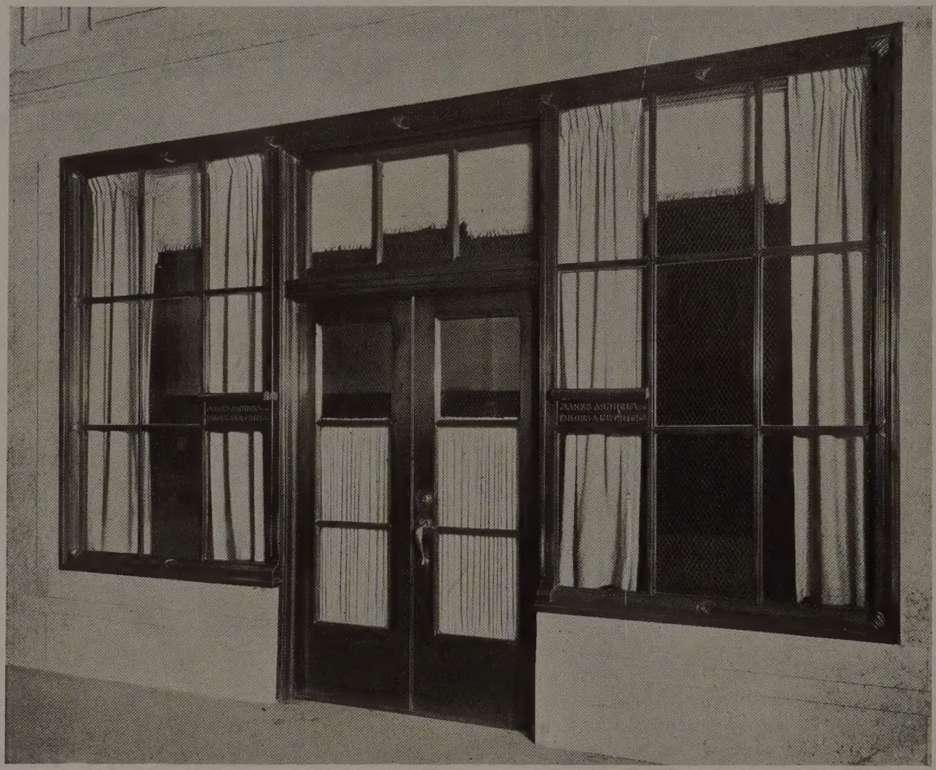
Price, mailed flat to any address in the United States, Mexico, or Cuba, $5.00 per annum in advance, $1.00 a number; to Canada, $6.00 per annum; to any foreign address, $7.00 per annum.

Advertising Rates upon request. The writing and displaying of Advertisements is an art in itself, and the publishers will be pleased to give the Advertiser the benefit of an Expert's experience in this line at no additional expense.

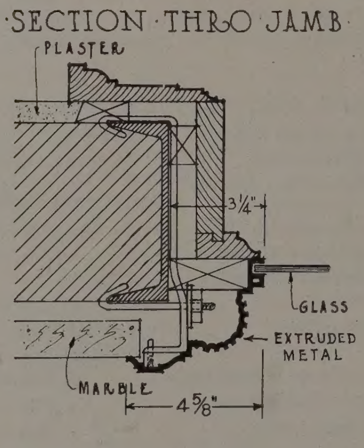
Copyright, 1922, by Charles Scribner's Sons. *All rights reserved.*

Entered as Second-Class Matter, March 30, 1909, at the Post-Office at New York, N. Y., under the Act of March 2, 1879.

Architectural and Structural Shapes



Interior Display Window, 30 East 42d Street Building, New York; Buchman & Fox, Architects; fabricated by the Henry-Bonnard Bronze Company, New York, from extruded shapes manufactured by The American Brass Company



Display Window of Anaconda Extruded Architectural Bronze

As shown in the cross-section drawing, this well-designed display window is constructed almost in its entirety of one pattern of extruded metal, with decorative cast bronze ribbon applied.

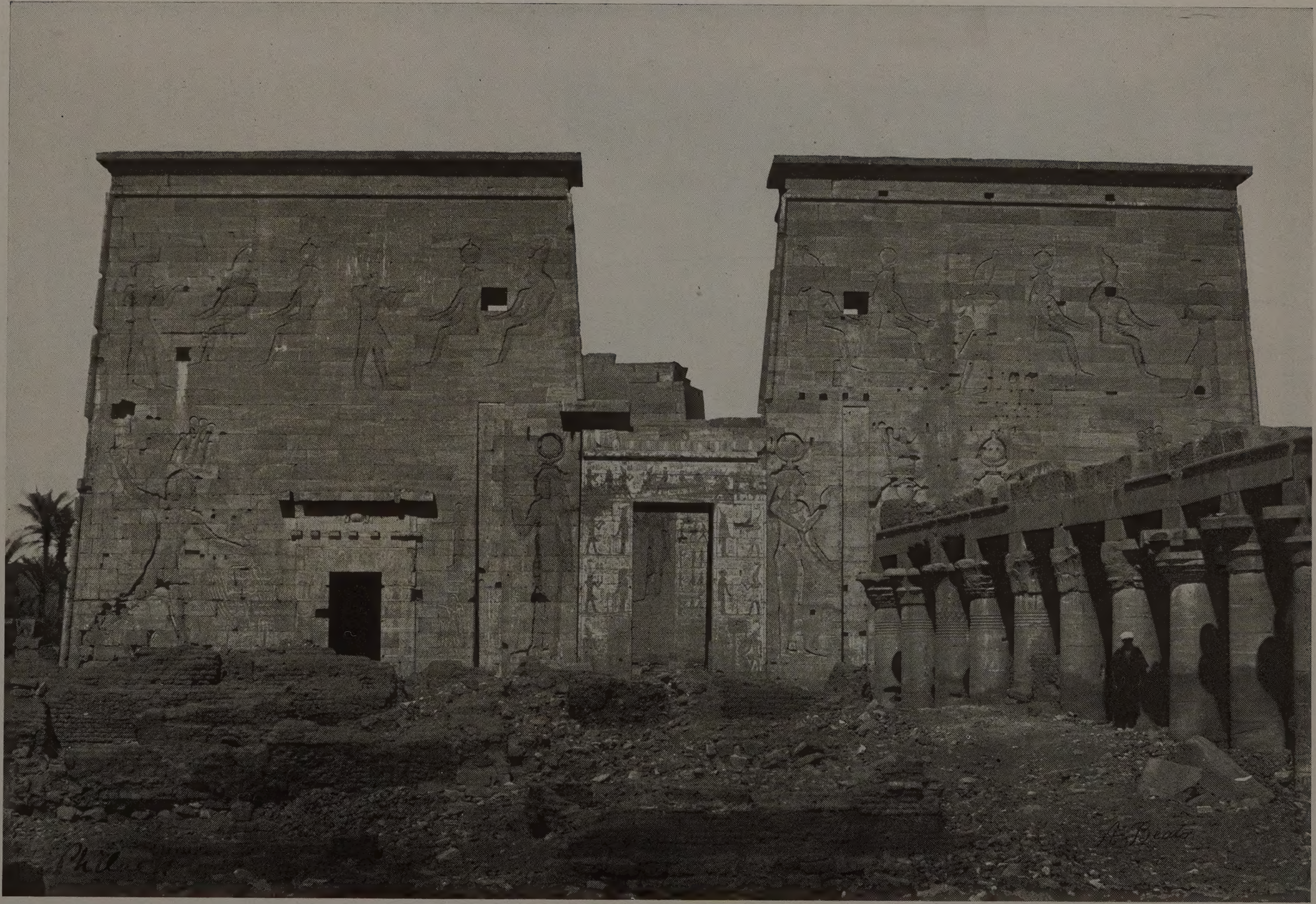
This is a good example of the application of Anaconda extruded architectural shapes to distinctive metal construction. These shapes are also used for bank screens, window frames, doors, store fronts, elevator enclosures and all kinds of interior and exterior metal trimmings.

Prices quoted upon application
Send blue-print or sketch of patterns required

THE AMERICAN BRASS COMPANY

GENERAL OFFICES: WATERBURY, CONN.

MILLS AND FACTORIES
Ansonia, Conn. Torrington, Conn. Waterbury, Conn. Buffalo, N.Y. Kenosha, Wis.



TEMPLE OF ISIS, ENTRANCE PYLONS, PHILÆ.